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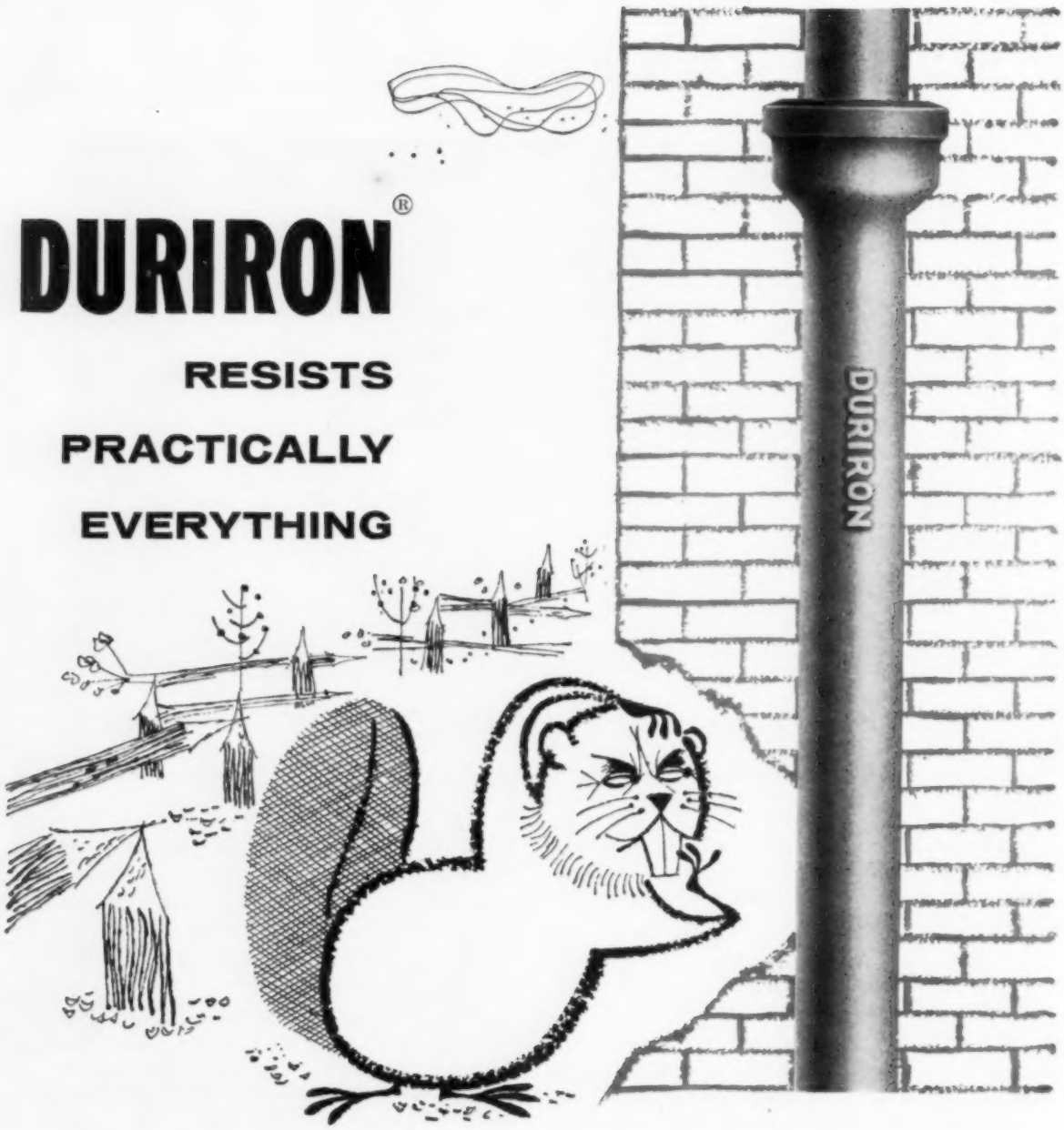

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PROGRESSIVE ARCHITECTURE

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It's the Law by Bernard Tomson

P/A Office Practice *Article supplementing previous discussions of the conflicts between zoning efforts and the principles of religious freedom.*

May a municipality which permits the construction of churches within a residential zone nevertheless refuse authority for such construction at a particular site within the residential area?

In previous columns *(February and March 1956 P/A)* the right of a municipality to exclude churches or private schools from residential areas was discussed. It was pointed out that, until recently, the courts had consistently struck down zoning regulations which attempted to distinguish between public and private educational facilities, or which sought to exclude churches from residential districts. However, as these articles further pointed out, a few recent decisions departed from precedent and distinguished between the right of public and private institutions to construct non-resdential buildings in a residential zone.

If these departures from precedent were the beginning of a trend, such trend, in New York at least, has been abruptly halted. Since the columns referred to above were written, the New York Court of Appeals, the highest court of New York, has decided two separate cases on this subject matter. The Court, in reaffirming the principle that a municipal ordinance may not be construed so that it would in any manner interfere with the free exercise of religious worship, rejected the attempts of municipalities to limit or restrict the sites on which churches could be constructed. *(Matter of Diocese of Rochester* v. *Planning Board of Town of Brighton; Matter of Community Synagogue* v. *Incorporated Village of Sands Point)*

In both of the cases referred to above, the zoning ordinances of the respective communities involved did not prohibit the erection of churches in residential areas, but required the church organization to obtain a permit from a planning board. The planning board in each case refused a permit, contended that a place of worship on the respective sites (1) would depreciate the value of the property in the neighborhood, (2) would be detrimental to the neighborhood and the residents thereof, and (3) that there were other sites which would be more suitable for the erection of a church. In each case, the Court of Appeals rejected these contentions as valid considerations.

In the *Rochester* case, in answer to the assertion that the construction of a church would be detrimental to the neighborhood and change its character, the Court stated:

"This, in effect, is a declaration by the Board that a proposed church and school, such as we have here, could only be built in an outlying area. . . . Thus, the Diocese is forced to locate in an undeveloped section of the Town without being able to adequately serve the territorial need of its parishioners, hoping that people of the Catholic faith will move near it. I know of no rule of law which requires that churches may only be established in sparsely settled areas. On the contrary, as was said in O'Brien v. City of Chicago, (347 Ill. App., 45) 'wherever the souls of men are found, there the House of God belongs.' . . .

"Noise and other inconveniences have been held to be insufficient grounds upon which to deny a permit to a church (State ex rel Synod of Ohio v. Joseph (Ohio) (supra)) or a parochial school (Archbishop of Oregon v. Baker (supra))."

In regard to the contention that the value of property in the neighborhood would be depreciated, the Court stated:

"Moreover, in view of the high purposes and the moral value of these institutions, mere pecuniary loss to a few persons should not bar their erection and use."

In the *Sands Point* case, the Court reiterated the general rule that churches may not be wholly excluded from residential areas, by stating:

"The text writers agree that churches and schools should be allowed in Class A residential areas which are usually the quietest and least congested areas of a town. . . . It is well established in this country that a zoning ordinance may not wholly exclude a church or synagogue from any residential district. Such a provision is stricken on the ground that it bears no substantial relation to the public health, safety, morals, peace or general welfare of the community. . . . An ordinance will also be stricken if it attempts to exclude private or parochial schools from any residential area where public schools are permitted."

However, in the *Sands Point* case, the planning board argued that its objection was only to the "precise spot" in question and that there were many other sites in the residential zones on which a church could be more suitably erected. The Court asserted that, if the municipality had the power to bar a particular site, then it would follow it had the power to select the appropriate site, and concluded that it had neither.

"While many may be tempted to think that the solution offered by the intervenor is excellent, when one thinks it through, one realizes that if the municipality has the unfettered power to say that the 'precise spot' selected is not the right one, the municipality has the power to say eventually which is the proper 'precise spot.' That, we all can see, is the wrong solution. The men and women who left Scrooby for Leyden and eventually came to Plymouth in order to worship God where they wished and in their own way must have thought they had terminated the interference of public authorities with the exercise of religion. We think that we should accept the fact that we are the successors of 'We, The People' of the Preamble to the United States Constitution and that we may not permit a municipal ordinance to be so construed that it would appear in any manner to interfere with the 'free exercise and enjoyment of religious profession and worship.'"

In still a third case which followed the two cases discussed above *(Matter of Garden City Jewish Center)*, a New York lower court was called upon to consider the refusal of a planning board to issue a permit for the construction of a synagogue. The contention of the planning board in this case was that the parking facilities available at the site in question might not be adequate for the future expansion of the contemplated church. The Court, in rejecting this argument, said:

"The evidence in the record establishes that at the present time the off-street parking provision is sufficient. As to the future, the board may not require excess parking facilities now to take care of all future growth. . . . To hold now that provision for the unforeseeable future must be made would restrict the freedom of worship by denying the right to establish a church, not because the facilities are presently inadequate or unsuitable but because they may become so with the passage of time."

The unrestricted right to construct churches or private schools may conflict with some of the goals and aims of zoning regulation. However, it is the weight of judicial opinion that the principle of freedom from interference in religious worship outweighs the public policy considerations underlying the principles of zoning.

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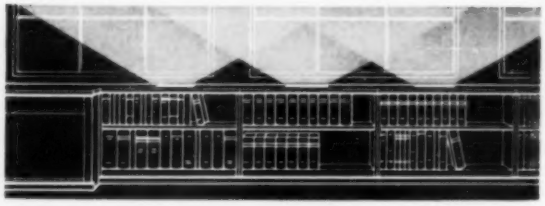

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Mechanical Engineering Critique

by William J. McGuinness

P/A Office Practice *column on mechanical and electrical design and equipment, devoted this month to Controlled Industrial Environment.*

Sometimes industrial manufacturing processes need air conditioning more than workers do. Tendency is to provide controlled environment for both, but occasionally a separate and different kind of control is demanded by the nature of the product. Miniature Precision Bearings, Inc., Keene, New Hampshire, found this to be true at its new factory which was completed early this year.

This company, headed by H. D. Gilbert, a pioneer in this young industry, has probably done more than any other to reduce friction and increase efficiency of small devices such as speedometers, dental drills, automatic pilots for aircraft, and many other control mechanisms. Its production is confined to small ball-bearings ranging from 1/10 in. to 3/8 in. outside diameter, complete with inside and outside track and balls.

The new factory, designed by Boston Architects Anderson & Nichols, is a one-story building with no basement and only a small second story which houses a museum. The working story is 14 ft in height. The miniature process uses only about eight of this height, leaving the upper six ft free for air-conditioning units and for pipe and duct distribution. A utility room centralizes the sources of all services to the plant. Two horizontal, steel, package-type boilers produce steam and hot water; air is compressed for automatic air-conditioning controls; refrigeration units produce chilled water. The several divisions of the plant draw on this reservoir of power to serve their diverse needs. Ten units, each with fans and coils for hot or chilled water and drawing fresh air from small cupolas in the roof, are located in the upper six ft of the story height and near the zones they serve. Overhead distribution of water, air, and steam leaves the lower eight ft clear throughout the factory. Space divisions are at a minimum. Some cubicles are enclosed by dwarf partitions. A few rooms are completely enclosed by walls and an interior ceiling at the eight-ft level, above which storage space as well as room for equipment is available. One of these rooms is the very special "white area" described later. Care has been taken to provide distance vision through the plant and beyond it.

General conditioning throughout the plant is provided by some of the 10 central-station, roof-hung units. Each takes in return factory air through a grill at the unit and distributes the conditioned air through a duct system from which it is gently dropped in the vicinity of each working area. Dials at the five-foot level near each of the stations permit workers to dial fresh air at a rate varying by their choice from zero to 100 percent of the air circulated. When the setting is 100, all of the return air is exhausted through the roof cupolas and a full measure of fresh air drawn in through the conditioner and delivered to work spaces. The immediate freshening effect of this process can be imagined. During spring and fall the setting can remain at 100, but in critically cold or hot weather the admixture of outside air must be kept to a minimum because of the expense of heating or cooling it. Administrative and engineering personnel (research, metallurgy, electronics, mechanical engineering) occupy perimital areas. Here fin and tube convectors and fans, forming remote-conditioning units and placed below glass may be dialed for temperatures desired by adjacent staff.

Within the shop area, local air cleaning occurs at each grinding machine where individual electrostatic filtering units draw in air and relieve it of oil mists and metal dust which is so destructive of assembled bearings. Because of intermittent use, receiving rooms and stock rooms are not air-cooled although ventilation is provided. Heat treatment rooms are not cooled since this would simulate an attempt to bail out the ocean, but fresh air ventilation keeps them tolerably comfortable.

Most interesting, perhaps, is the so-called "white area" where the product is cleaned, assembled, inspected, and packaged. Here the conditioning methods used in the shop are not good enough. The smallest particle of foreign matter can cause abrasion in bearings and even a little surface moisture can rust bearing parts—though they be of stainless steel or other corrosion-resisting metal. Entry to this fully enclosed room is through a vestibule with two sets of doors. Upon opening them an outward pressure of room air is apparent. This prevents the entry of dust-laden shop air. Workers shoes are vacuum-cleaned in this vestibule and there employes don lint- and dust-free outer garments. A separate central station unit above this room supplies it with conditioned air. The utility room includes a separate compressor with a standby unit of equal capacity to guarantee special and dependable chilled-water service to the conditioner for this room. Double filtration of air and frequent filter inspection and cleaning do their part to improve the cleanliness of the air. Within the room, recording devices with visible dials measure and plot the temperature and relative humidity. Temperature is stabilized at 68 to 70 F and relative humidity between 25 and 40 percent. An alarm sounds if the relative humidity exceeds the high limit. This separately air-conditioned island within an air-conditioned plant has interior, sealed observation windows on all four sides, hospital-clean surfaces, built-in vacuum cleaning hose connection, and high intensity illumination from the shadowless source of a fully luminous-plastic ceiling. No feeling of claustrophobia is experienced. Working conditions are ideal within this "white area," which, incidentally, is an attractive pale green. Custom-designed furniture and the esthetic use of color add to the pleasure of occupancy.

Heat gain in the plant is minimized by the fact that the one great expanse of glass is on the east which the sun leaves early in the day. Behind this glass are the areas for reception, administration, and dining. They look out on a mountain. Eye-level strip windows afford little area for solar heat pick-up on other elevations. The heat gain consists principally of the load from machines and people. A careful study was made of the comparative cost of the operation and amortization of a cooling tower with the cost of buying municipally supplied water which would be used and not recirculated. The latter plan was chosen and 124,000 gal per day are purchased. They flow away to form an artificial stream and duck pond on which employes sometimes go boating. Absence of a cooling tower adds to the trimness of the structure. The chimneys are invisible except form the roof because induced draft makes it unnecessary for them to extend more than 4 ft. High efficiency combustion keeps soot and odors out of the flue gases.

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Studying Today's Clients

P/A Office Practice ***Article based on a talk in the Alcoa Series made at Rennselaer Polytechnic Institute, Troy, N. Y., by P/A Editor Thomas H. Creighton.***

The revolution in architectural design in our time had its inception largely in academic, abstract tenets. Granting the early actual in-place work of the original pioneers, a widespread change in *thinking* about design (and teaching of design) preceded the widespread change in *practice* of design. The average practicing architect in the United States, whether his practice is in New York or Evansville, Indiana, has taken almost twenty years to catch up with the theoreticians.

Is it now possible that the schools and the teachers in the schools need to catch up, in another sense, with the practitioner, and that the practitioner needs the better to understand his practice? The practicing architect, taking a long time to learn the design theories and the technological implications of the new architecture has, in the meantime, gone through a radical change in his *type of practice*. Are the young men coming out of the schools at all prepared, in an academic sense, to cope with this new practice? Or has the practicing profession, busy as it is, taken the time to make an objective, high-level study of its own new practice methods?

There seems an obvious paradox from which to begin such a study: the great gap between the theory of design and the ability to design, on the one hand; and the theory of practice and the quality of accomplished work, on the other. The design professions today possess great talent, knowledge, imagination—and great promise for future continuing growth. Yet, in the face of this fact, our American cities, towns, suburban communities, and countryside are receiving, day by day, a mass of badly designed, or mediocre, or undesigned buildings and groups of buildings.

When one examines the reasons for this paradox, in order to find a solution to it, we meet differences of opinion. The reasons commonly advanced are:

1. *Popular taste and understanding*, as represented by the typical client, are always bound to lag behind professional understanding and ability. If this is the true reason (and it certainly has validity) then the solution would be one of two approaches: (a) raising popular taste as far as possible by popular education in architecture and its allied arts; or (2) designing down to that general level of taste, in order to stay in business.

2. *Commercialism and materialism* of our time, represented again by the typical client, as opposed to the honesty, integrity, and creative urge of the competent designer, make widespread use of total design talent impossible. If we accept this as the reason, the only solutions would be: (a) to persuade a materialistic client to sponsor "good design" as art for art's sake, purely as a patron, with no thought of commercial gain; or (b) again, forsake the best possible in order to "give the client what he wants and needs" in order to maintain a practice.

3. *In today's complex society*, complicated as it is by technological as well as economic factors, the architect and architectural planner are no longer *able* to design buildings, except as coequal partners of experts in the fields of finance, merchandising, and management. Holders of this thesis put the building owner, the real-estate manipulator and the financial juggler on an equal footing with the architect and engineer in design, and advocate a "team" of designers of the environment. If this argument is correct, then the only solution is to admit as *designers*, as well as entrepreneurs, such nonprofessionals as the speculative home builder and the Chairman of the Triborough Bridge Authority.

•

The great advantage of any or all of these theses is that they are very comfortable to accept. They provide excuses for the architect to shift blame for the badly designed environment to "circumstances beyond his control." They make it possible to explain mediocre work on the grounds that "the community isn't ready for good design," or "this section [*every section! ED.*] is the most conservative part of the United States," or "the business men in this town can't see beyond the ends of their noses," or "after all, this is what the real estate people told us would rent, and we can't argue with the experts."

Acceptance of these so easily acceptable reasons for the disparity between promise and performance prevents a *serious study* of the theory of contemporary practice. Is it possible that the real reason for frustration of creative talent in so many cases is that:

1. *The client group*—those who sponsor and pay for architecture—has changed completely in the last quarter century, and the new client has not been analyzed and studied as to his needs, desires, weaknesses and limitations, and strengths and possibilities.

2. *The means* by which the social aims of architecture are reached in buildings have changed radically, and these means—the rationale of the achievement of functions—have not been analyzed and studied, with regard to the new limitations and difficulties, or the new possibilities and advantages.

Is it part of the architect's job to understand ways to achieve buildings, as well as how to design them? If it is not, he is running the risk of relinquishing a large part of his professional position in society, and allowing fringe groups, quasi-professional groups, and purely commercial groups to nibble away at his function until he has left little reason for existence. And it is possible that the schools of architecture are running the risk of teaching a purely academic subject, while the truly pertinent training for the design of buildings might pass to the schools of business administration, of hospital administration, of land planning.

•

Who is today's client? He might be classified, in one sense, as either a "private" client building for himself, the remnant of the patron client, now almost entirely restricted to residential buildings and certain smaller types of commercial structures; the commercial/industrial client, sponsor of office buildings, shops and stores, factories and warehouses; and the institutional client, controlling schools, hospitals, churches, and so on.

If one were going to study these clients deeply, however, it might be

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Studying Today's Clients

characteristics rather than *types* that should be analyzed. Here are suggestions for areas of study.

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Today's client is in many cases a *group* rather than an individual. Designing for a realty company or for an insurance company really means designing for a committee of hard-boiled real-estate and financial experts. Designing a church commission or a hospital project means designing for a committee of lay people who may range from farmers to college presidents.

Dealing with a group requires special preparation. Committees are very likely to include some extremely conservative people; as groups they are very likely to compromise. "Preparation" does not imply only enthusiasm, fighting spirit, "salesmanship" (which often doesn't stick), and diplomacy. It also implies some knowledge of the nature of group action.

What motivates, what characterizes group decisions? This is an important question today, for it is the whole basis of the democratic method of action. There is literature on the subject, which could be translated into our terms. A group decision can be as weak as the lowest common denominator of the group; as median as the common level of all members' understanding; or as high as the greatest ability and level of competence represented in the group. Discussion, development of interests, exposure or cultivation of prejudices and other factors can lead to one result or another: bad compromises or bold decisions. Surely this characteristic of today's client is worth some study, at some depth.

•

Another characteristic of the client in 195X may be that he is—as individual or group—likely to be a *commercial* client. We used to think of commercial clients as those interested only in one category among many in architecture: commerce, as opposed to housing, health, education, and so on. But now, as Victor Gruen has said:

"In the widest sense of the word (a commercial structure) is one which either serves the producing, buying, and selling of goods, or which is erected with the purpose of constituting a merchandising item itself, being built for the specific purpose of leasing or selling space. . . . Outside of the classification manage to stay only a few building types . . . and even in those categories commercial thought processes are making inroads."

In other words, the reason for a client commissioning an architect in the great majority of cases today is to make a profit. The *function* of an apartment house or a tract house is to provide shelter for habitation; *the reason that it gets designed and built*, however, is to make money for the client, in lease or sale.

Is this too obvious? Is it a hopeless climate in which to practice? Or is it again simply a challenge to study—basically and objectively—the greatest possible benefit that can be derived from it? The architectural profession can't run away from the facts; the social and economic pattern is not likely to change very quickly.

Why does one architect succeed in getting fine architecture and advanced planning incorporated in a shopping center, and another, despite good intentions, have to compromise? It is not only a difference in client, or superior sales ability; it is more often a perhaps intuitive understanding of the client on the one hand, and a lack of it on the other. Unfortunately, the normal pattern of response, on the part of architects, to such clients is: (a) disinterest in understanding commercial reasoning; (b) fear to assert the designer's prerogatives in the face of superior commercial knowledge; (c) an attempt to override the commercial client's wishes by sheer force of design genius; or (d) inability to communicate and transmit valid ideas on commercial levels.

Are there motivating characteristics of the commercial client, common to all from John Rockefeller to John Doe who is looking for a quick sale of a group of speculative stores? Should the commercial client be deprecated (or considered stupid) because he is not himself a creative artist; or are there benefits to be derived from his plus characteristics: pride, ambition, business acumen, interest in technology and what he calls "know-how." If he is not prejudiced in favor of good design, is he necessarily prejudiced against it? Are there areas to be explored in business reasons for sponsoring good architecture? Do we really understand, in our field, his motivating criteria and stimuli? These are areas of study which might well repay an academic approach, which later could be translated into practical, useable terms.

•

A third characteristic of today's client that might be studied is his membership in a community. This is related to, but not the same as, the "committee action" characteristic. Almost anyone today is likely to be a community member. However, the community may be a horizontal one (Troy, New York, one neighborhood in the suburbs of Troy, the Capitol City region, New York State, or even the Northeast part of the United States) or a vertical one (the profession of medicine, the Junior Chamber of Commerce, an association of merchandise managers, the National Education Association). The point is that one of the characteristics of our time is that people live, play, work, travel, and often think in these larger groups of common-interest communities.

What are the characteristics of these homogeneous community-type groups, understanding of which might help the architect better know his client? It has been pointed out by sociologists that community-mindedness does not prevent individual development, although it certainly affects it. (It doesn't even, apparently, prevent loneliness; the tragedy of the loneliness of an individual member of a group has been documented.) It does strongly affect, and effect, thinking—and action.

An architect today has the choice of *identifying* himself with a community (an approach this magazine has continuously documented) or simply trying to *understand* the community. Identification can imply, on the part of a professional, leadership within the community. At the other extreme, total isolation from the community would seem to lead only to frustration, abstraction of design effort, and impotence in the *accomplishment* of first-rate results.

•

To summarize: the suggestion here is that both an academic and a pragmatic study of *the theory of contemporary practice* might lead to some fruitful results. Such a study might, in the long run, prove to be more *practical* than an analysis of fee schedules as an approach to architectural practice.

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REINHOLD

curing speeded

Dear Editor: Unfortunately for authors and publishers, but to the advantage of the economy as a whole, are the rapid technological changes which make outmoded last months technical reports. I refer to Guy G. Rothenstein's excellent article on cold-glazed cement finishes *(October 1956 P/A)*.

When the author interviewed us, several months ago, the Vitricon process *did* require several days in the application phase and more days in the curing of the product.

We are pleased to report, however, that further chemical research has resulted in a one-day cycle in the application of Vitricon. That is, a complete job may be done in one day and the material obtains sufficient hardness for normal usage. However, as is true of most cement curing, ultimate hardness occurs after 28 days.

GEORGE KOGEL, President
Vitricon Inc.
Long Island City, N. Y.

well merited

Dear Editor: Congratulations on your P.S. in October 1956 P/A.

Such recognition is well merited by architects as well as by other "home-town boys" in many other fields.

HARRY C. PLUMMER, Director
Engineering and Technology
Structural Clay Products Institute
Washington, D.C.

rang the bell

Dear Editor: Many thanks for the sincere warm feelings your P.S. in October brought to me. I must confess I felt a little bit bigger, a little more confident, and a whole lot more useful after absorbing it.

It seems difficult and almost impossible at times to achieve this kind of recognition. I mean the realization by a community that the architect is or can be an influential factor in the community's growth, spiritually as well as physically. It sometimes seems unfortunate that he can not be more articulate concerning this for everyone's welfare. This is why it is such a tremendous lift to have someone of your stature and position ring the bell energetically for the small-town practitioner.

By way of digression, have you ever come across Christopher La Farge's novel *Beauty for Ashes?* It is a remarkable and rewarding study of the small-town architect and his community.

J. FREDERICK COOK, JR.
Livingston, N. J.

"enjoyable reading"

Dear Editor: As a regular student of PROGRESSIVE ARCHITECTURE, I clip for filing many pages of your magazine each month. Some of these I circulate to others in our organization.

One of the items that gets this treatment fairly regularly is Ben John Small's page on specifications. As a regular thing, these are enjoyable reading, and in addition they seem to strike home at some of the most important problems which we are facing regularly today.

The discussion titled "Curtains" which appeared in September P/A was of particular interest.

ROBERT W. McKINLEY,
Technical Representative
Pittsburgh Plate Glass Company
Pittsburgh, Pa.

young letterwriters!

Dear Editor: Architecture U.S.A. is very interesting—I admire its expression. Your journal, which now comes to our library, is to me and to my fellows more intelligible than others. We like it!

Allow me to ask you a little favor. I wish to make the acquaintance of students, around 20 years old, who can write and exchange magazines with a Czeckoslovakian colleague. Please give my name to someone interested.

I look forward to a letter and thank you very much. I wish P/A much success.

BOHUMIL PROHAZKA
Praha 5
Na Zastrelu 16
Ceskoslovensko
(Continued on page 14)

(Continued from page 13)

serves the profession

Dear Editor: I would take this opportunity to express my feelings about P/A. In fact, anything I write will be too little, but I can't resist the urge and so shall give my feelings as follows.

As I have found, this is the best encyclopedia of information today in the architectural profession. Unlike other monthly publications, it contains not only the plans and photographs of the buildings, but also the other branches of the profession. Equal emphasis is given on every side of the scientific art and every item gets a judicially proportioned space in the magazine. In short, this is the only monthly publication in the architectural world which gives sufficient information on every aspect of this profession and serves the profession in the true sense.

BAL RAJ MEHTA
Professor of Architecture
P.O. Ghaziabad (U.P.), India

the church music

Dear Editor: Very recently an architect friend of mine lent me his copy of October 1956 P/A, principally because he knows how interested I am in church architecture, and to some degree, perhaps, because he knows what I have been doing about one facet of this total picture.

In recent years I have, largely under the banner of the American Guild of Organists, presented lecture-forums in various parts of the country for this organization's chapters on the subject of acoustics for the church. One of these was given last June in New York City as a part of the Guild's biennial national convention.

As an occasional by-product of my interest I find myself writing letters to the editors of architectural magazines—letters which make somewhat anguished noises about what I do and do not see portrayed and emphasized.

So with your permission I would like to offer some purely personal reactions to the churches in your October issue, taking each one individually. With the introduction starting on page 103 there is little quarrel other than the lack of inclusion of emphasis on (1) the architectural recognition that visual and auditory impacts should be compatible and should match, and (2) that the purpose of acoustics in and for the church was not defined.

In fact, it occurs to me that no architect can realistically design a church until he has a firm recognition and understanding of why a worship room has to have certain requirements which are directly related to the denominational and

(Continued on page 16)

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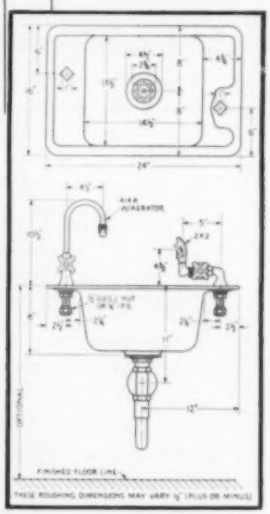

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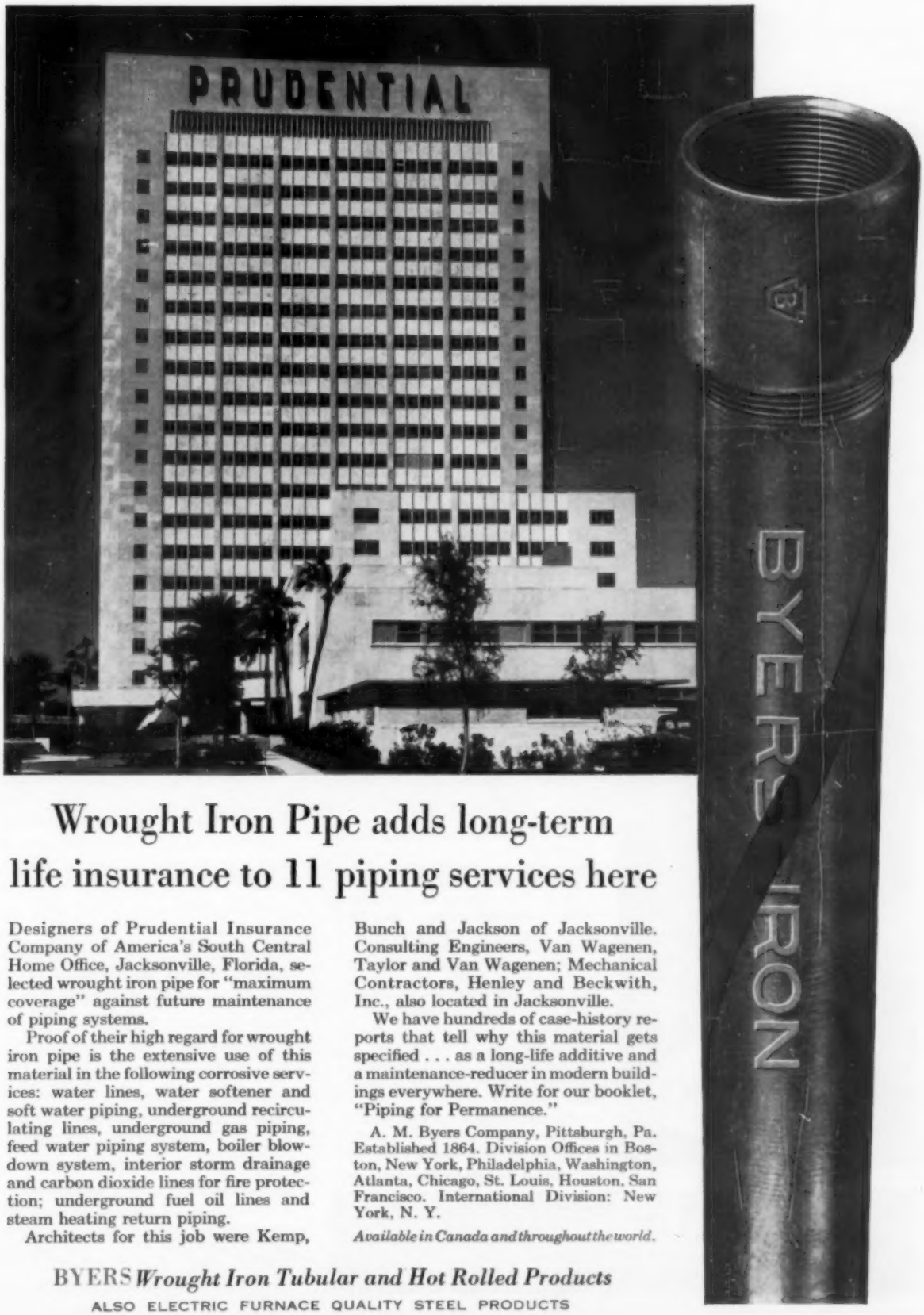

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(Continued from page 14)

other demands stemming from the clergy and laity of a particular parish. By this I very definitely do *not* mean that the architect should inevitably bow to the client; but rather that he should be so trained that he can as co-ordinator include certain demands in his creative effort and at the same time produce a realistic worship room for today and tomorrow that is acceptable on all scores, and especially functionally. In all this I am thinking solely of the worship itself, not of any adjunctive areas.

Now for the churches shown. The Unitarian Church on page 106 shows no indication whatever as to where the Allen electronic organ console and speakers are to be placed, either in plan or picture. I assume the choir stalls are those to the right of the table (the word "table" is used since an altar, *per se*, has little or nothing to do with Unitarianism).

The plan of Temple Isaiah on page 113 indicates no provision or space for organ or singers, yet I am under the impression that music is still an integral part of the Hebrew service form. The same comment exactly serves for the plan of Temple Beth-El on page 117, unless the areas on either side, in back of an apparently solid wall, are to be so used.

The Presbyterian Church on page 120 is a welcome exception. The rear gallery placement is without question the best for organ and choir, provided such placement is acceptable to denominational thinking on the purpose of music in worship. Having seen other photographs of this church, however, brings one peculiar fact to light. Since the organist sits with his back to his choir, it would be interesting to learn how he controls them when directing them. To have placed the console in front of the choir would have been no trick at all and points up what little thought and attention is paid (or perhaps permitted) by architects to the actual function of music in worship. I am, of course, aware that the organ pictured in your magazine has since been replaced by another.

The Lutheran Church on page 123 shows a console placement across the chancel from what are assumed choir stalls. Although not listed, the room, I presume, to the right of the sanctuary is for the organ. If so, this points up one recurring facet of wrong thinking: that sound turns corners. It doesn't, at least without a definitely recognizable amount of loss in tone and quality and quantity.

The Episcopal Church on page 126 shows clearly the placement of organ console, choir, and organ itself. It also shows that unless the architect

(Continued on page 22)

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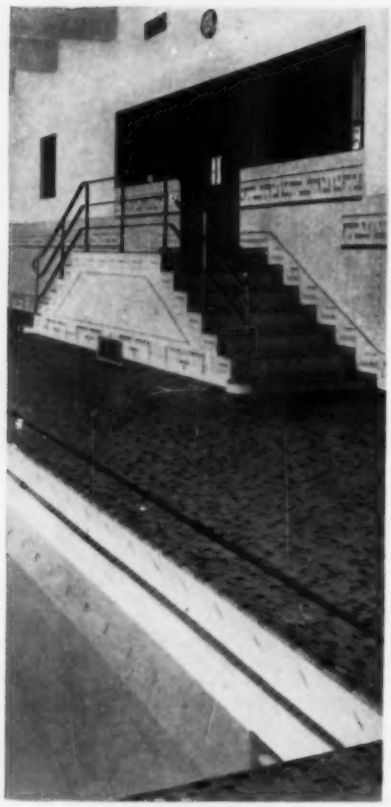

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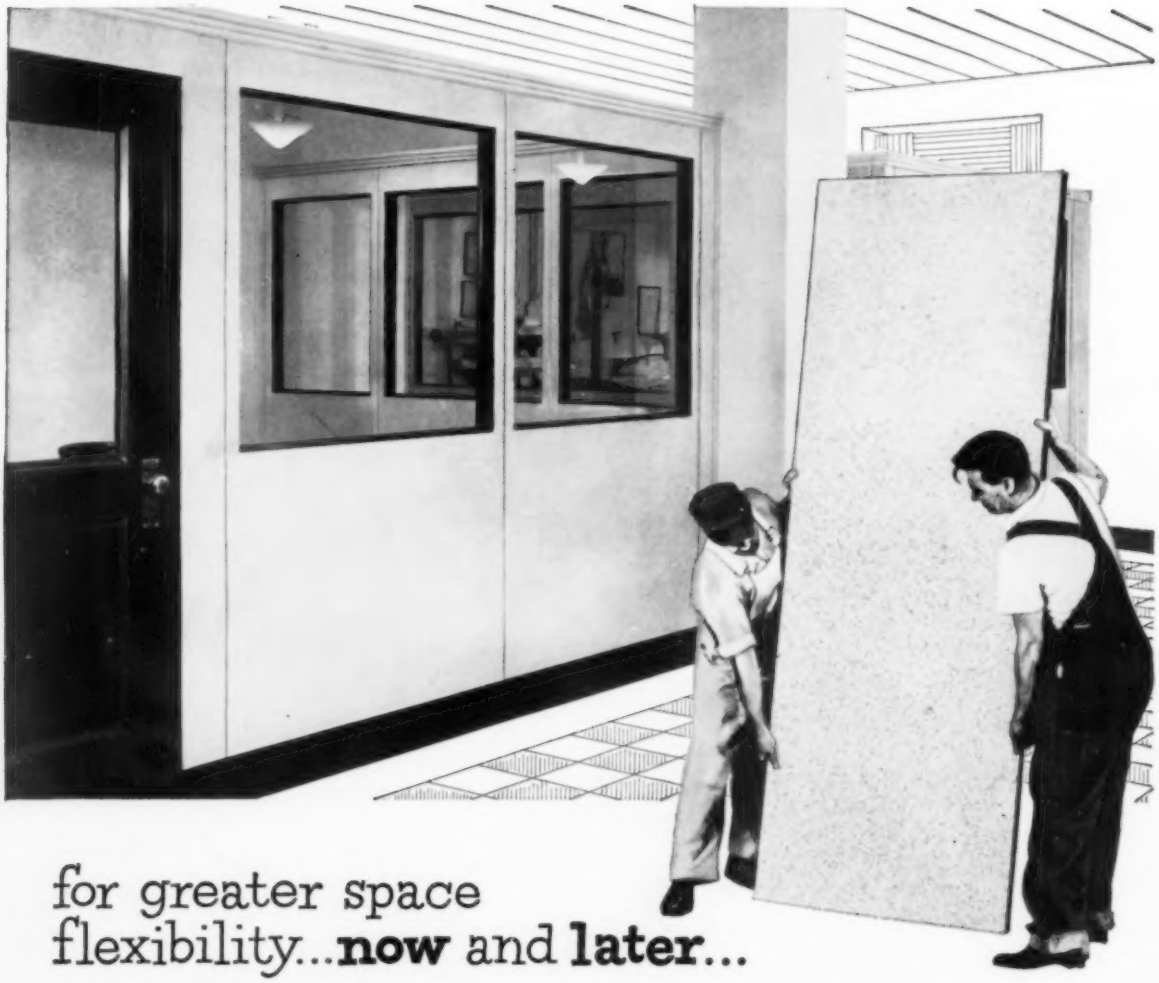

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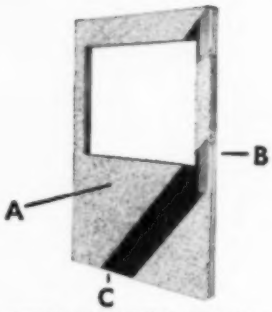

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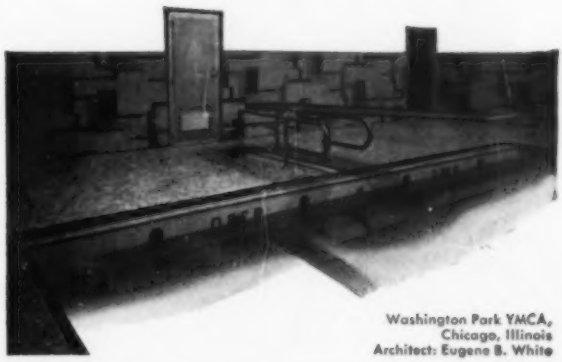

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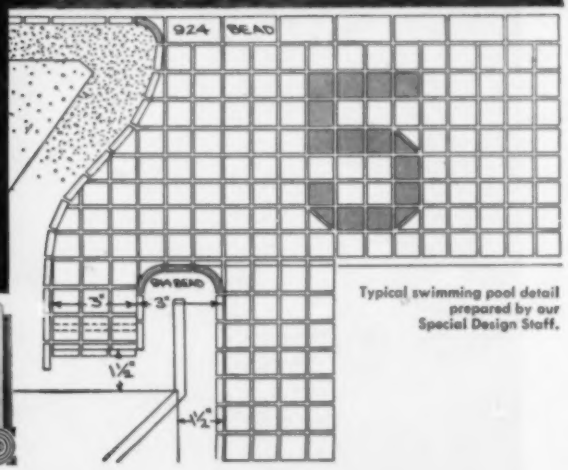

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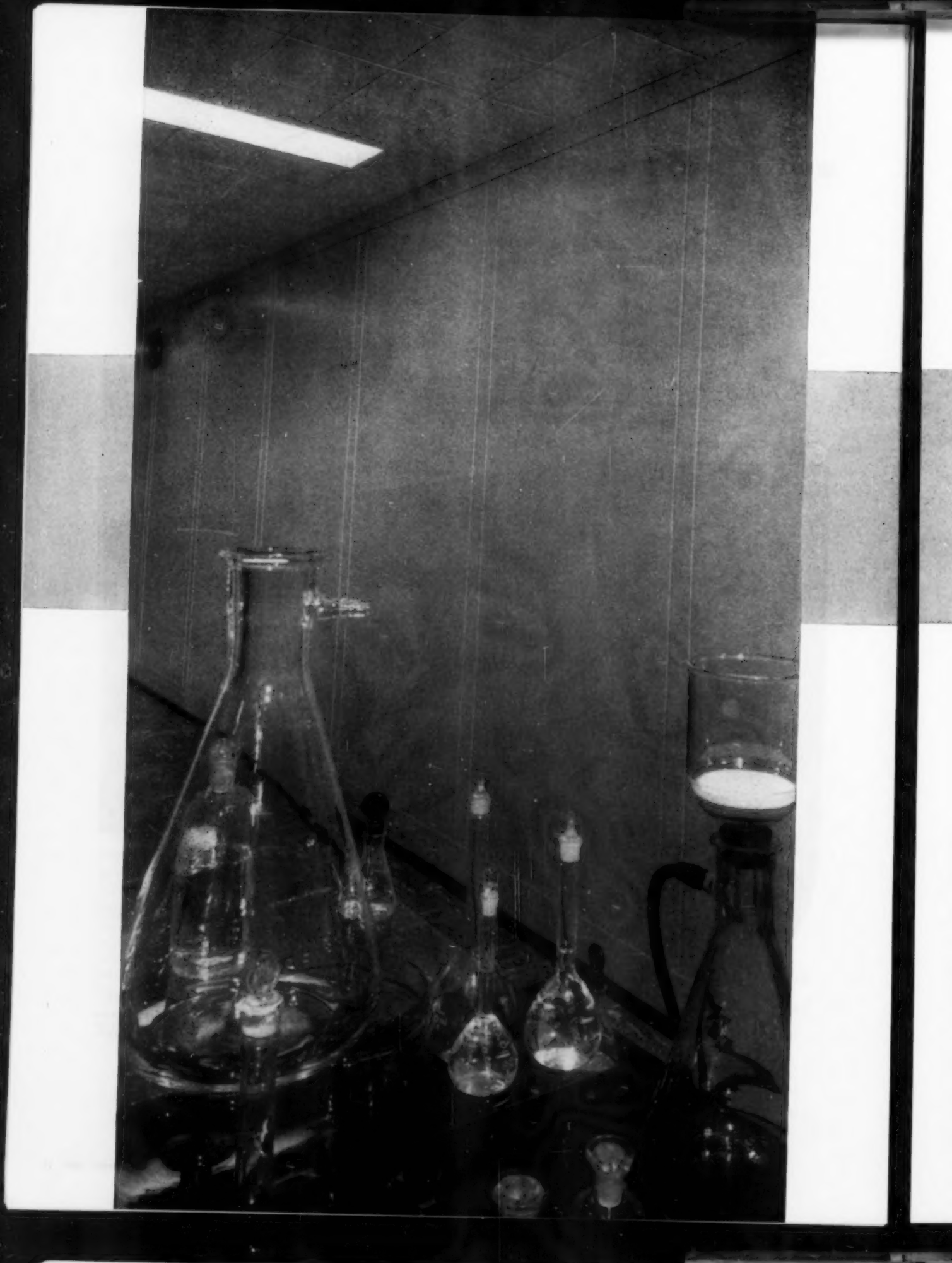

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(Continued from page 16)

concerned was placed squarely over a barrel by the client he has less than no concept of the function of music in worship. It would be utterly impossible for organ, as accompanimental instrument, to be the support of choral singing and yet be in volume balance with the choir insofar as the congregation is concerned. Such a separated placement for organ and organist-choir is simply stupid and ridiculous. Again, of course, the assumption that sound turns corners is evident.

The space provided for the organ in the Christian Science Church is fronted by grillage which would be acoustically opaque, could not permit the best degree of sound to flow to congregational area without loss. Here it would seem is another instance in which visual impact must come before all other considerations, importantly including both auditory impact and ideal function in worship.

Without question the most fascinating subject in the issue is the Mexican monastery chapel. Here, well thought out advanced design conforms to the denominational (and specialized) requirements of the room in a brilliant manner. The space and placement provided for music are ideal.

I believe sincerely and strongly that your magazine would be doing your architect-readers a distinct service when next you have a church spread, were you to include accurate, proved information about the real requirements for (1) acoustics in the church, and (2) the space and placement requirements for the organ - choir - and - console realistically related to the function of music in worship. I am sure you are also aware that many architects are lacking all this information. The results in terms of churches being built today proves this. Please recognize that I do not place all the blame on the architect. Much of the blame rests squarely on the shoulders of bigoted and opinionated clergy and laity.

Such information could be made available to you. I will be more than happy to offer whatever service I could be to you.

RAY BERRY, Editor and Publisher
The American Organist
Member, Committee on Architecture and Acoustics
American Guild of Organists
New York, N. Y.

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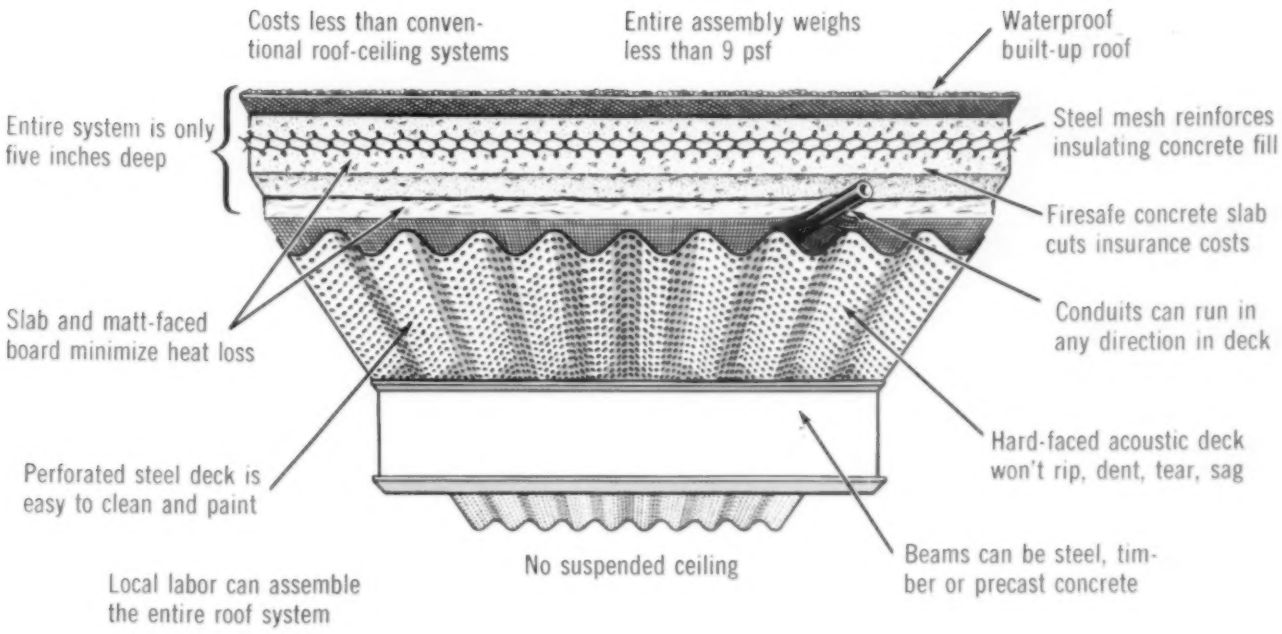
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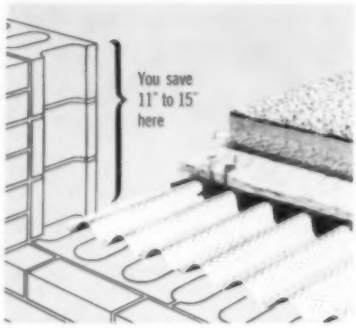
Using a *new combination* of building materials, research engineers of Granco Steel Products Company have recently perfected an acoustical roof system only 5 inches deep. Heart of the system is STRUCTUR-ACOUSTIC—a galvanized, corrugated steel sheet with acoustic underside. Demonstrated on these pages are unique features of this new deck and the economical roof system it makes possible . . . news of interest and importance to *every* designer, builder and planner of schools:

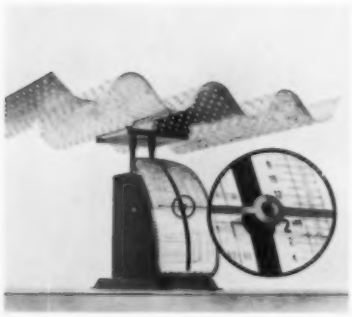
STRONG

Made of high-tensile, tough-temper steel, Structur-Acoustic serves as structural deck. Photo shows how a sheet of Structur-Acoustic —placed on simulated beams 5′ apart—easily supports a 175-lb. man. The entire roof assembly is designed to carry normal roof loads with adequate factor of safety.



SAVES WALL HEIGHT

Shorter walls mean savings. Structur-Acoustic shortens walls by making possible a roof system only 5″ deep! A suspended ceiling system usually requires 16″ to 20″ in depth. *By saving the 11″ to 15″ in extra wall height needed to enclose this system,* you save thousands of dollars in materials and labor.



LIGHTWEIGHT

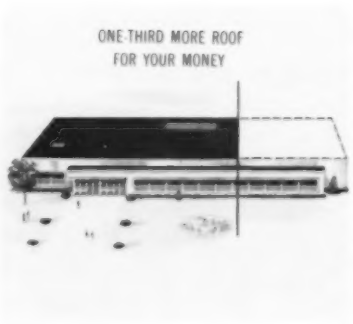
Note that Structur-Acoustic weighs only 2 psf. Add 6 psf for concrete and ½ psf for acoustic board and the result is a roof system weighing less than 9 psf! This means fewer and lighter framing members, smaller columns and footings, lower building costs, faster, easier construction.

GOOD ACOUSTICS

Structur-Acoustic steel sheets are perforated with a grid of holes 5/32″ in diameter, spaced about ½″ on centers. Tests conducted by Riverbank Acoustical Laboratories indicate that this roof system with a 2½″ slab provides a Noise Reduction Coefficient of 0.80 and a U factor in excess of 0.14.

FIRESAFE

Structur-Acoustic is fire-safe and so is the lightweight insulating concrete slab beneath the built-up roof. This important safety benefit protects both the building and its contents and occupants (always a vital consideration in schools!)... also helps keep owner insurance costs to a minimum.

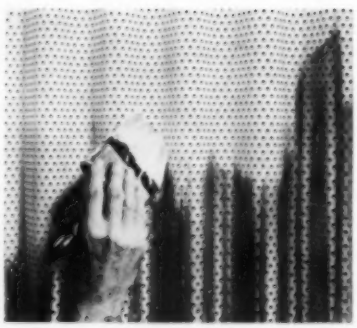


LOW COST

Structur-Acoustic offers one-third more roof for your dollar than conventional school roofs with similar features. Wall height is saved. Insurance rates and maintenance are reduced. The system is permanent, relies primarily on local labor, keeps building dollars in the community.

HARD-FACED

Pencil "jab test" proves the rigid toughness of Structur-Acoustic. Paper clips can't dent the surface. Sheets retain their original shape . . . won't rip, tear, sag or stain . . . can be easily cleaned and painted. Low maintenance features make Structur-Acoustic perfect for installation in schools.

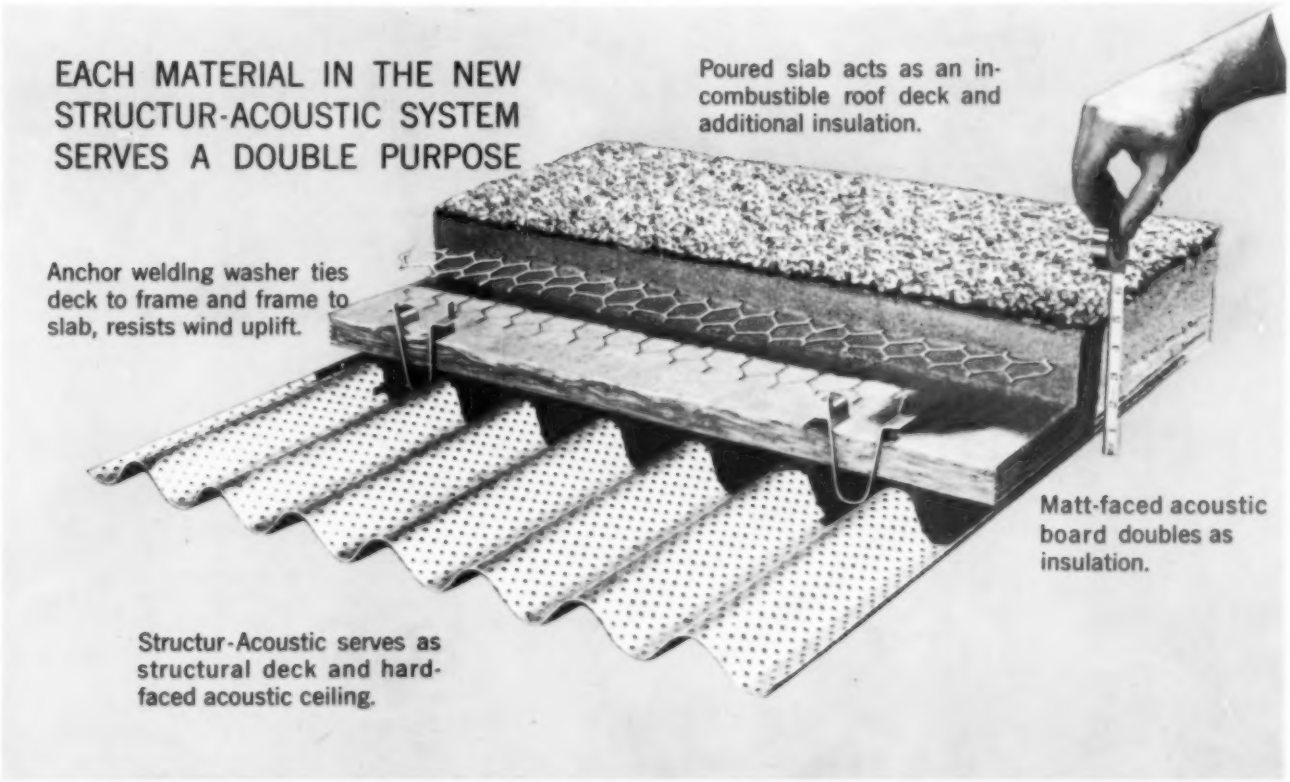


ATTRACTIVE

The clean, corrugated underside of Structur-Acoustic is distinctive in appearance, reflects light, can be painted any color to meet the decorating scheme. Light fixtures are easily attached. Structur-Acoustic is washable, won't dent or lose its shape. Its hard face insures *lasting* beauty.

MAKES 5-INCH ROOF SYSTEM POSSIBLE

CEILING, SAVES 11″ TO 15″ IN WALL HEIGHT, MEETS ALL ROOFING REQUIREMENTS

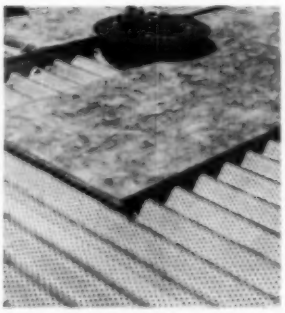

EACH MATERIAL IN THE NEW STRUCTUR-ACOUSTIC SYSTEM SERVES A DOUBLE PURPOSE
Poured slab acts as an incombustible roof deck and additional insulation.
Anchor welding washer ties deck to frame and frame to slab, resists wind uplift.
Matt-faced acoustic board doubles as insulation.
Structur-Acoustic serves as structural deck and hard-faced acoustic ceiling.

Offering rigidity, the permanence of concrete, fire resistance, high insulating value and low dead load, the Structur-Acoustic roof system satisfies all roofing and acoustical requirements. All materials in the system—steel, glass fiber and concrete—serve for the life of the building. Perforated, corrugated Structur-Acoustic units are fabricated from steel having a minimum yield point of 80,000 psi. This high-strength steel is available in various gauges to meet job framing conditions economically.

EASY-TO-ASSEMBLE ROOF SYSTEM USES LOCAL LABOR

EASY TO PLACE

Structur-Acoustic units arrive at the job site conveniently bundled and pre-cut to fit the steel framing. Sheets handle easily, place fast on beams spaced on 4′ to 7′ centers. Units are welded to structural frame in *seconds*.



TAKES ABUSE

In place, Structur-Acoustic withstands normal abuse, becomes a safe working platform for trades. The matt-faced acoustic board placed on top of Structur-Acoustic units is 1″ glass fiber board and has a density of 6 pcf.

FIRM ROOF BASE

The concrete slab provides a firm, inorganic, permanent base for the built-up roof and adds fire safety. Conduits can be run in *any direction* in the concrete slab. Result: Shortest possible runs using least labor and materials.

LOCAL LABOR

Application of a waterproof built-up roof completes the job! Note: *All* materials are assembled at job site by local labor. No bulky assemblies to be fabricated and shipped long distances at high freight rates—a major saving.

TURN THE PAGE ⟶

GRANCO STEEL PRODUCTS CO.
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Please send me without cost or obligation a copy of the new Structur-Acoustic Product Manual No. BT-571.

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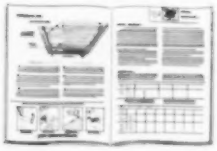
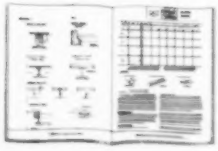
HERE'S WHAT NEW CATALOG CONTAINS

1. Photos, cutaway drawings and complete description of the Structur-Acoustic "triple duty" roof system and its advantages to architects, contractors and owners.



2. Step-by-step instructions on roof-system construction... physical properties of Structur-Acoustic ..."quick selection" table for one- and two-span roof construction.



3. Detail drawings on wall sections, anchor details, eave overhangs, closure angles (sound stop and expansion joint) . . . tables on Structur-Acoustic load capacities.

4. Information on Structur-Acoustic accessories, suggested specifications... facts on Granco design service and other Granco products for the construction industry.

STRUCTUR-ACOUSTIC . . . WHEREVER SOUND CONTROL IS NEEDED

SCHOOLS. Structur-Acoustic roof systems are ideally suited to classrooms, where economy, low maintenance, good acoustics are prime requisites.

RADIO-TV. Adaptability of system is shown in new U. of Michigan press box. Structur-Acoustic deadens the chatter of crowds, typewriters, etc.

WHILE STRUCTUR-ACOUSTIC WAS DEVELOPED WITH CLASSROOMS IN MIND, IT ALSO ADAPTS TO MANY OTHER COMMERCIAL PROJECTS:

ONE FLOOR OFFICES → Low maintenance of hard-faced acoustic and low first cost place Structur-Acoustic within reach of every new building owner.

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STORES AND SHOPPING CENTERS → The economies in construction and low maintenance make this roof system perfect for stores and offices in shopping centers.

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Architects: Cull & Robinson

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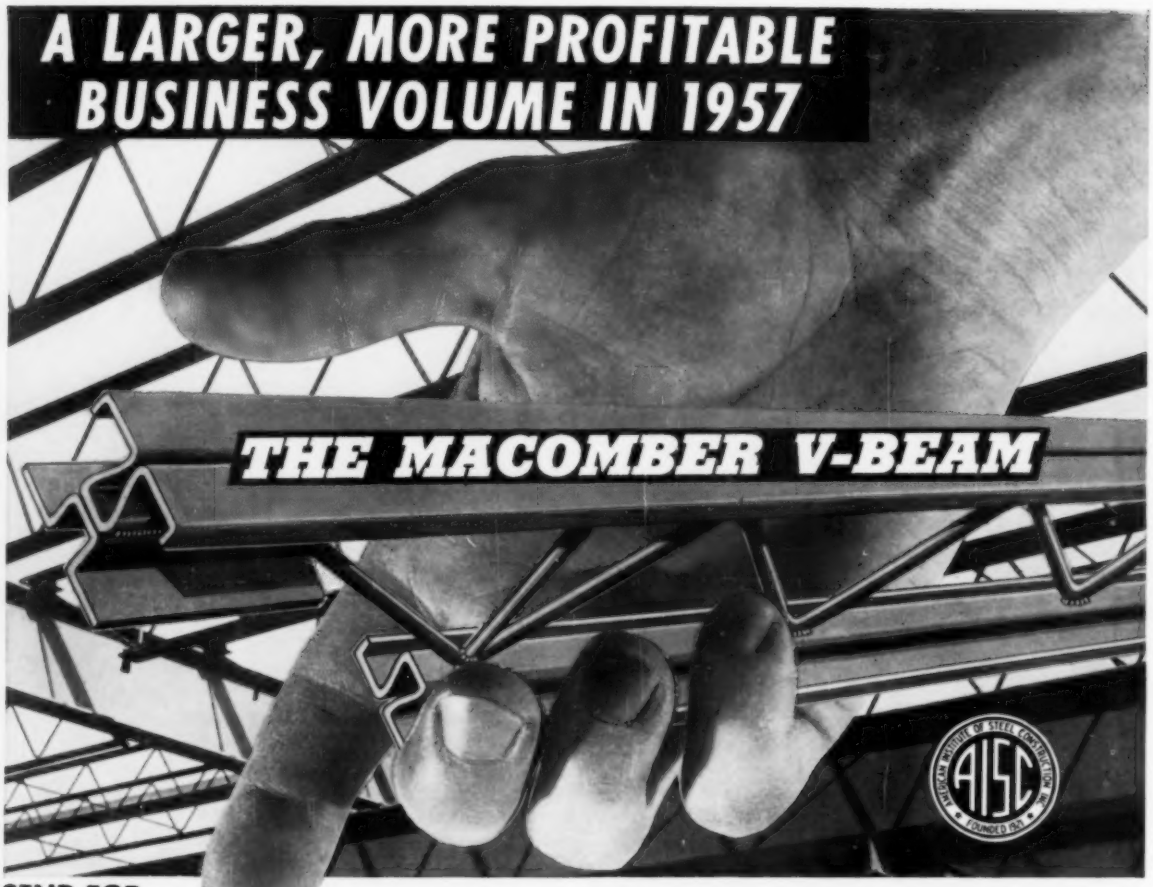

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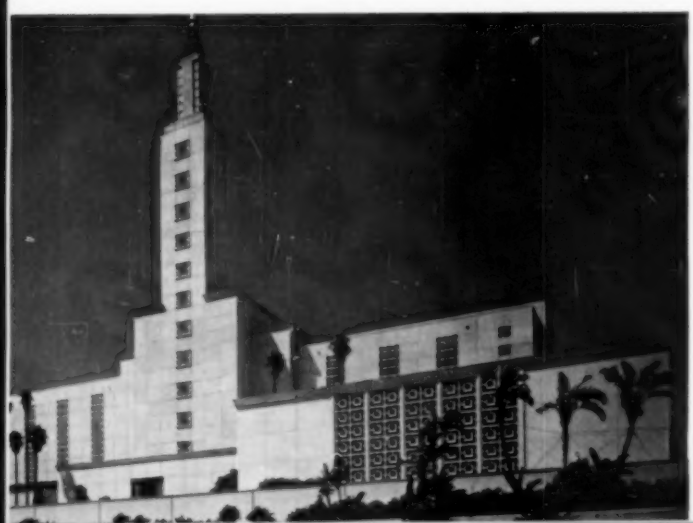
So why not consider the possibilities of versatile precast concrete facings on your next building project—and for more uniform color, be sure to specify Atlas White Cement.



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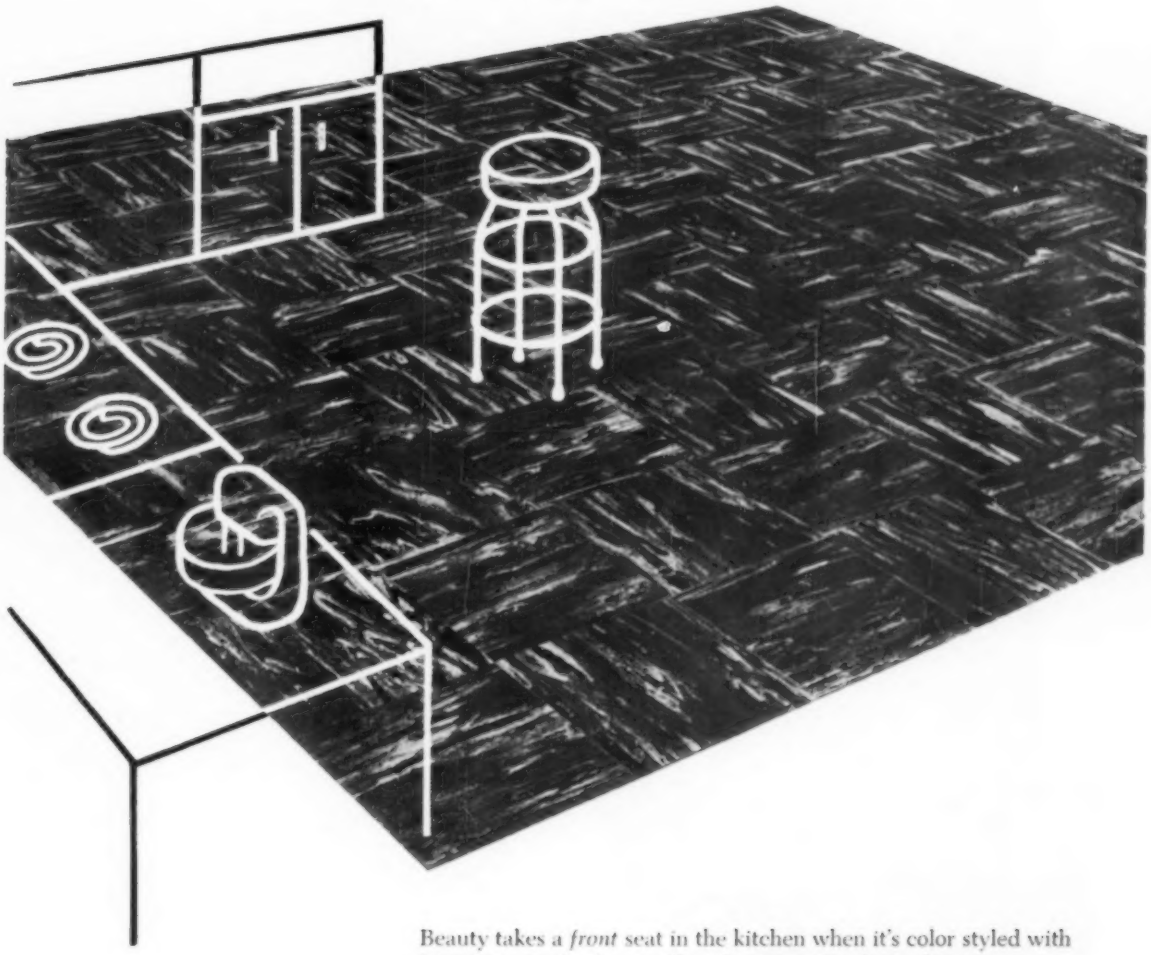

Beauty takes a *front* seat in the kitchen when it's color styled with Vina-Lux vinyl-asbestos tile. This versatile plastic flooring is a favorite with interior designers because of its many new, soft, *usable* colors.

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Pattern shown: Riviera

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**ETL Report No. 362625, July 23, 1956.*

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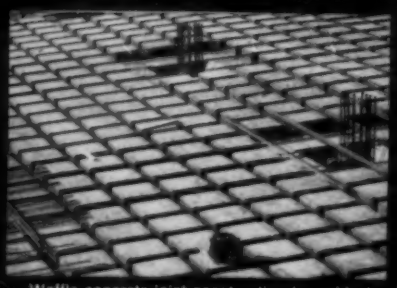
Simple open wood centering supports Ceco-Meyer Flange-Type Steelforms for waffle construction used in The Center, Omaha. Here a worker is readying steelforms to fill out a panel.



Waffle concrete joist construction is an ideal solution for buildings with wide column spacings and light floor loads. Savings are made in the formwork and in the elimination of ineffective concrete.

There's nothing better than reinforced concrete for permanence. With Ceco's Waffle Construction you can have permanence—plus longer spans and higher beam-free ceilings without increasing over-all building height.

Ceco Open-Web Steel Joists used as roof purlins, as illustrated here, comprise the lightest of all standard roof framing, allowing long spans and light beams, columns and footings. They can be erected summer or winter—and are non-combustible and non-shrinking.

WAFFLE-TYPE PROVIDES

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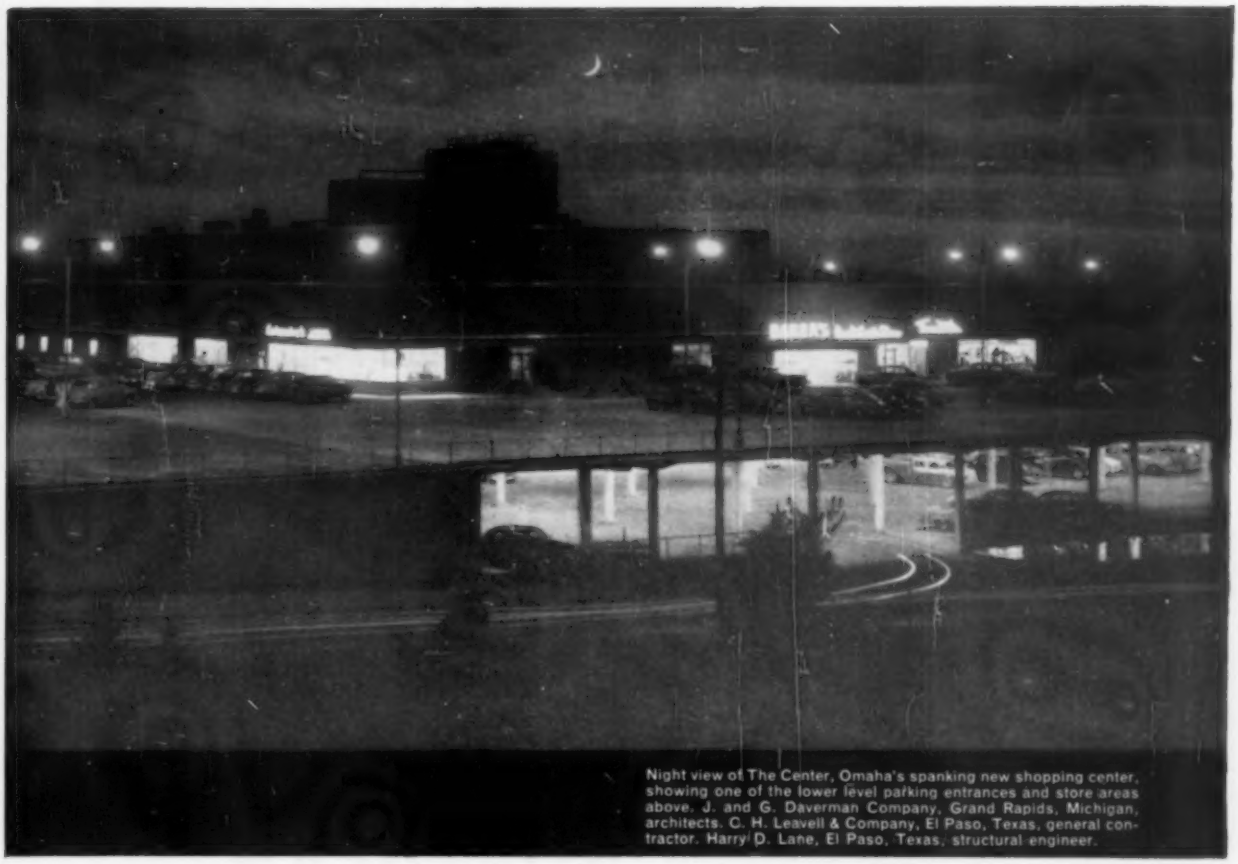

Night view of The Center, Omaha's spanking new shopping center, showing one of the lower level parking entrances and store areas above. J. and G. Daverman Company, Grand Rapids, Michigan, architects. C. H. Leavell & Company, El Paso, Texas, general contractor. Harry D. Lane, El Paso, Texas, structural engineer.

CONCRETE JOIST CONSTRUCTION "WIDE OPEN SPACES" . . . CUTS COSTS 7%

CECO ENGINEERING TAKES "LAZY" CONCRETE OUT OF LONG SPANS . . . Wide open spaces . . . that's the need in shopping centers . . . where the fewer the columns the more freely the merchandise moves. So in designing The Center—Omaha's newest shopping community—the architects J. and G. Daverman Company used Ceco-Meyer Steelform "Waffle" Construction to obtain long, rigid floor spans at reasonable cost. Comparison with other framing methods showed dollar savings of 7%. Non-working "lazy" concrete was eliminated by the open waffle areas —yet this two-way joist system created maximum stiffness. Further savings were made by using Ceco Open-Web Steel Joists for the roof and mezzanine. Ceco also supplied Steel Reinforcing Bars and Welded Wire Fabric, meeting exacting delivery schedules. Here's an example of how Ceco Coordinated-Engineering assures the best structure while saving money and speeding construction. Next time call Ceco for planning help.

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NORTHERN HARD MAPLE

The "foot-friendly" floors of the gymnasium and the band room in this emphatically modern high school provide maximum utility, versatility and service-life expectancy. *That*, you'll agree, is a good deal to obtain in one "package." Floors of Northern Hard Maple, guaranteed as to species, grade, dimension and millwork by rigid **MFMA** standards, have delivered such value for generations. No other flooring or floor *covering* can approach this magnificent wood in its natural resistance to scars, dents and abrasion. Its bright, tight, tough, resilient character needs only simplest maintenance. Modern finishing methods give lasting luster to its beautiful grain. Floor your multi-purpose areas with **MFMA**-certified flooring. It has earned your confidence. SEE SWEET'S 13j-MA. Write for List of **MFMA**-approved Finishing Products.

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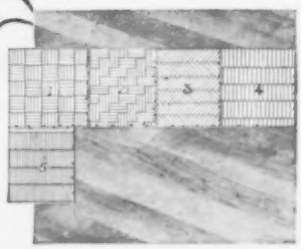
Available in blocks and modern patterned designs as well as the more conventional strip form. Readily laid in mastic, over concrete or softwood sub-flooring.



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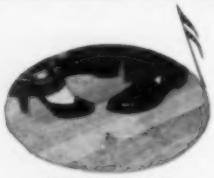
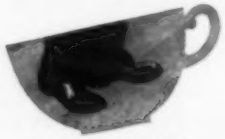
Suite 583, Pure Oil Building, 35 East Wacker Drive, Chicago 1, Illinois

for BASKETBALL



for DANCING

for CLASS ACTIVITY



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Waterbury 20, Conn.

Gentlemen: *Please send me your new* FREE *booklet titled,* "CHASE COPPER DRAINAGE TUBE AND SOLDER-JOINT FITTINGS."

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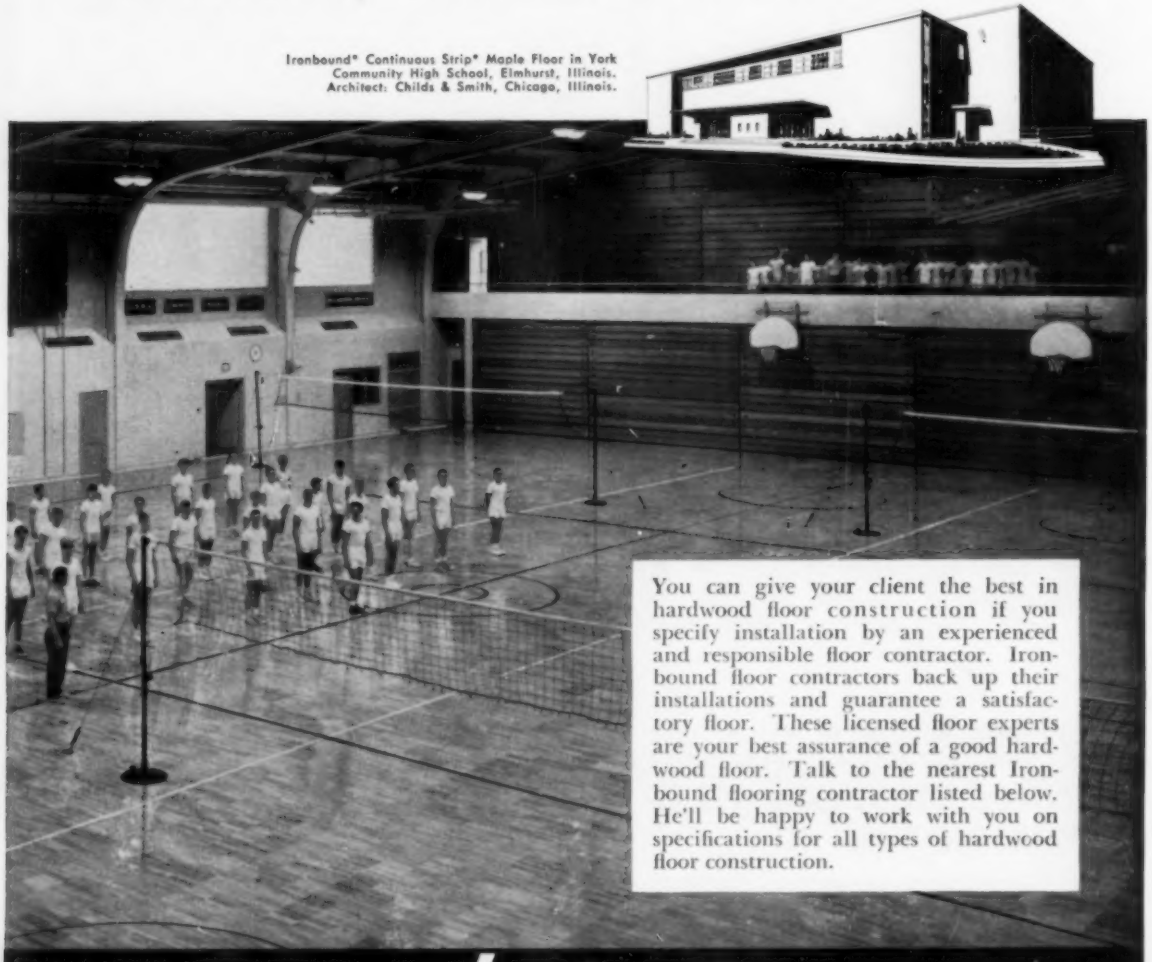
even *Ironbound** floors are no better than the men who install them

Ironbound* Continuous Strip* Maple Floor in York Community High School, Elmhurst, Illinois. Architect: Childs & Smith, Chicago, Illinois.



You can give your client the best in hardwood floor construction if you specify installation by an experienced and responsible floor contractor. Ironbound floor contractors back up their installations and guarantee a satisfactory floor. These licensed floor experts are your best assurance of a good hardwood floor. Talk to the nearest Ironbound flooring contractor listed below. He'll be happy to work with you on specifications for all types of hardwood floor construction.

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Canton Floors, Inc.
2548 Clearview Avenue, N.W.

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The Ironbound Co. of Cleveland
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Austin Flooring Company
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701 South Logan

Des Moines, Iowa
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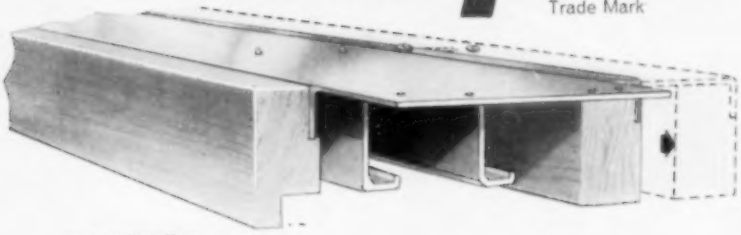
NEW WARDROBE HEADER

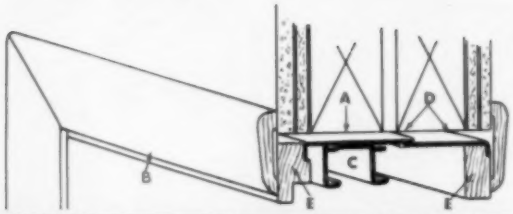
Cuts Costs • Saves Labor • Adds Beauty

Series 1900 Kenna-pak

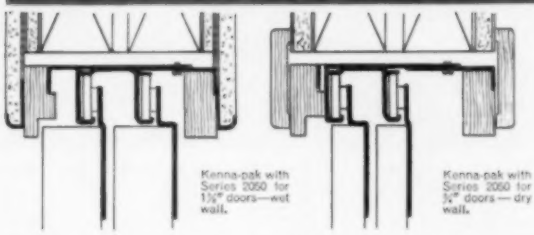
Trade Mark



Patent Pending



FOR ALL WALL MATERIALS 4½" — 5⅜"
FOR ¾" AND 1⅜" DOORS



Kenna-pak with Series 2050 for 1⅜" doors—wet wall.

Kenna-pak with Series 2050 for ¾" doors—dry wall.

One piece header and hardware for wardrobes using ¾" and 1⅜" sliding doors

A Steel header takes minimum headroom—eliminates fascia and cutting of doors—standardizes all door opening heights.

B Allows normal 3/16" reveal.

C Scottie 2050 hardware factory installed for 1⅜" doors. Adjustable for ¾".

D Adjustable to wall thickness: 4½"—6⅜".

E Front and rear nailing strips take any standard trim of your choice.

Kenna-pak, prefabricated adjustable wardrobe header assembly, is complete with steel header, Scottie Series 2050 sliding door hardware and wood nailing strips for wardrobes using ¾" and 1⅜" sliding doors. Completely packaged, Kenna-pak cuts labor and installation costs while adding to the beauty of sliding door wardrobe installations.

CUTS COSTS — SAVES LABOR

Parts vs. Pieces
Kenna-pak means that you work with one prefabricated piece rather than many parts, which require costly on-the-job milling and assembly.

One Man Job
Kenna-pak header unit is easily assembled to side jambs. One man can set unit in rough opening and finish job.

Uniform Openings
Kenna-pak means one height from finished floor for all standard openings. Eliminates costly construction of special openings. Kenna-pak is installed directly to the side jambs. No head jamb required.

Eliminates Door Cutting
Buy doors 6'8"... use doors 6'8". Kenna-pak minimum headroom allows full use of standard 6'8" doors.

ADDS TO BEAUTY OF INSTALLATION

Eliminates Fascia
Kenna-pak is the long sought for answer to the fascia problem. The trim of your choice is nailed directly to Kenna-pak wood nailers. Leaves a normal ⅛" reveal to harmonize with other openings. Hardware is completely concealed even before the trim is applied.

Same Trim Height
With Kenna-pak, wardrobe height matches passage doors. Same trim height inside and outside wardrobe.

Kenna-pak steel header takes minimum headroom. Eliminates fascia and cutting of doors—standardizes all door opening heights.

Adjustable Kenna-pak is nailed flush with side jambs.

One man raises Kenna-pak and jambs into place.

With Scottie Series 2050 hardware set to doors a neat installation is completed.

KennatracK®
CORPORATION
A SUBSIDIARY OF EKCO PRODUCTS COMPANY
ELKHART, INDIANA
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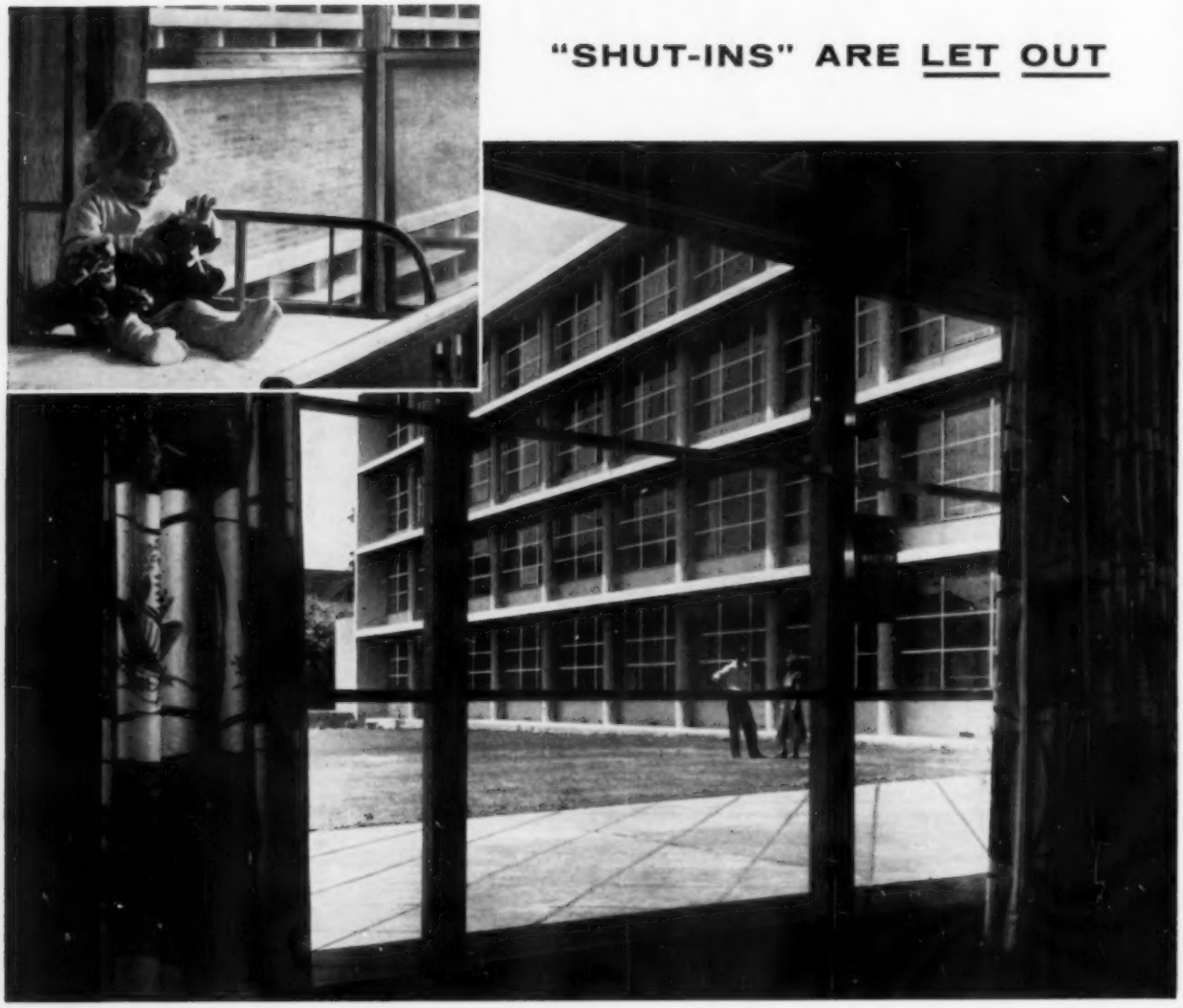
● **SERIES 1900 for standard jambs.**
SERIES 1950 for adjustable jambs.

"SHUT-INS" ARE LET OUT



Le Bonheur Children's Hospital, Memphis, Tenn. *Architects:* J. Frazer Smith and Associates, Memphis.

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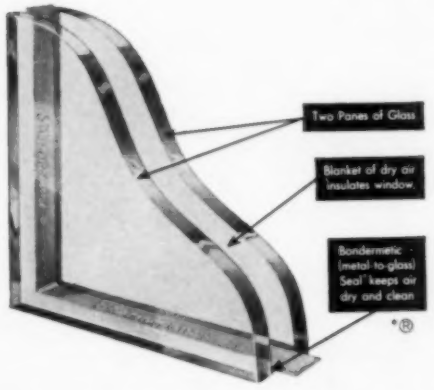
NOW ON A NORMAL DELIVERY BASIS

LIBBEY • OWENS • FORD... *a Great Name in Glass*

WITH THERMOPANE®...

And Maintenance Efficiency Increased

"*Thermopane* insulating glass appealed to us", states Architect Zeno L. Yeates of J. Frazer Smith and Associates, "because it permitted an open, airy plan which admits maximum light and sunshine with a minimum loss of heat in winter and air-conditioned comfort in summer. It also decreases the amount of condensate."



Thermopane reduces drafts near windows, deadens outside traffic noise to further aid patients' comfort. Want to know more? Read column at right.

Exterior view of LeBonheur Children's Hospital shows large expanses of *Thermopane* insulating glass.

Rockford (Ill.) Memorial Hospital is glazed with 2,178 *Thermopane* units. Architects: Perkins & Will, Chicago; Associated Architects: Hubbard & Hyland, Rockford, Ill.

Thermopane FACTS

Technical information is available to help the architect and engineer design for the most effective and economical use of *Thermopane* insulating glass. It is all in our *Thermopane* Manual which will be sent on request. (See coupon below.)

The following brief data are excerpts from the manual:

ADVANTAGES OF THERMOPANE

1. Savings in fuel
2. Increased usable room space
3. Reduction of condensation
4. Reduced air-conditioning initial equipment needs and operating costs
5. Quieter interiors

INSULATING EFFICIENCY

Thermopane with $\frac{1}{4}''$ air space—U = .65
Thermopane with $\frac{1}{2}''$ air space—U = .58
Single $\frac{1}{4}''$ glazing—U = 1.15

KINDS OF GLASS

Thermopane is made with plate glass for maximum clarity, or with sheet glass when economy is main consideration. Units $\frac{1}{2}''$ thick have $\frac{1}{4}''$ air space, units 1" thick have $\frac{1}{2}''$ air space. *Thermopane* can also be made with Heat Absorbing Glass, *Tuf-flex*® tempered plate glass, or several types of Blue Ridge *Patterned Glass*.

STANDARD SIZES

More than 90 standard sizes are made to permit economy in use with most popular types of sash. The *Thermopane* Manual provides a list of sash types and standard sizes for them.

OTHER DATA IN THERMOPANE MANUAL

Heat Loss Data
Warm Side Surface Temperatures
Condensation Points
Sound Insulation
Light and Solar Radiation Transmittance
Reduction of Cooling Load
Strength of *Thermopane*
Wind Load
Weight Per Sq. Ft.
Glazing Instructions
Framing Details
Suggested Specifications

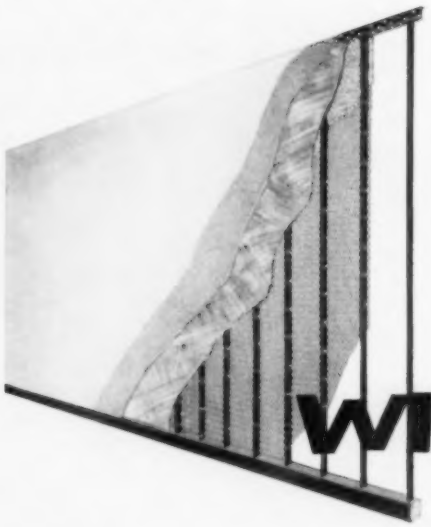
Thermopane is sold by local L·O·F Glass Distributors and Dealers (listed under "Glass" in the yellow pages).

Libbey-Owens-Ford Glass Co., Dept. 1126
608 Madison Ave., Toledo 3, Ohio
Please send me a copy of the *Thermopane* Manual

Name_____
(Please Print)

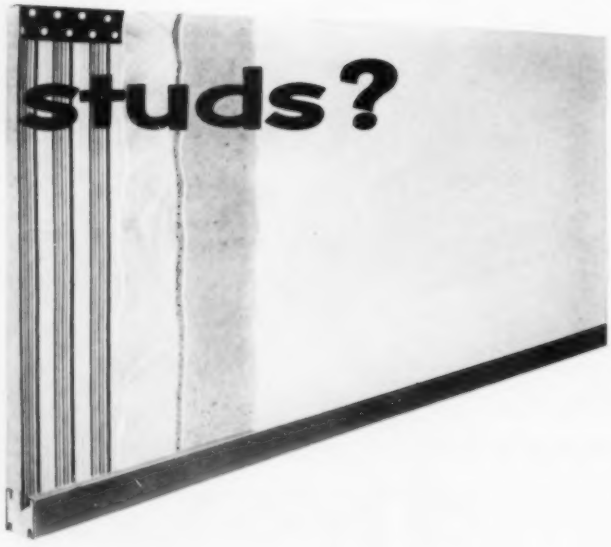
Street_____

City_____ State_____



WITH channel studs, the Gold Bond 2″ Solid Metal Lath and Plaster Partition System provides maximum fire protection, stability and low sound transmission. The system saves space . . . takes up less than half that of conventional wood-stud or masonry-constructed partitions. Metal ceiling runners, channel studs, base clips and base sections are designed to form a strong non-bearing interior partition up to 12′ high.

WITH or WITHOUT studs?



WITHOUT channel studs, the Studless Metal Lath and Plaster 2″ Solid Partition cuts material costs, reduces labor expense and allows time-saving construction. Composed of ⅜″ rib lath secured at floor and ceiling, the studless partition is plastered on both sides to an overall thickness of two inches. Normal limitation to the height of the studless partition system is 8′ 4″ . . . where it is possible to provide for longer lengths of lath in advance, partitions higher than 8′ 4″ can be constructed. This strong, economical, non-bearing partition is excellent for interior walls of apartment houses, hotels, office buildings and private homes.

Gold Bond 2″ Solid Metal Lath and Plaster Partition Systems

When you specify *stud* or *studless* partition systems, you can rely on famous Gold Bond® building products quality. Each system has its own distinct building advantages to meet individual design and construction needs. Refer to Sweet's Catalog 12a/Na for full information, or write Dept. PA-126, National Gypsum Company, Buffalo 2, New York.

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North Street Elementary School was designed by Sherwood, Mills & Smith, Architects, Stamford, Conn. *General Contractor:* A. Barbaresi & Son, Inc., Mt. Vernon, N. Y.; *Structural Engineer:* Seelye, Stevenson, Value & Knecht, New York City.

STEEL JOISTS HELPED LOWER BUILDING COSTS OF ELEMENTARY SCHOOL IN CONNECTICUT

North Street Elementary School in Greenwich, Conn., is a highly attractive example of modern school design. It starts with kindergarten and extends through the sixth grade, with age groups separated into primary and intermediate wings, which extend from a central unit of offices and non-classroom areas. Chief feature of the school's design is the fact that it is scaled to small children's use. The gymnasium has a child-height stage; and ceilings throughout the building are lower than usual.

Construction of the Greenwich school was planned to be both attractive and economical. Exposed interior brick, liberal use of glass and bright colors make it eye-catching, yet construction cost was held to $14.85 per sq ft.

Bethlehem Open-Web Steel Joists were used in the roof structure. The advantages of using Bethlehem Joists were many. They were delivered to the job site tagged and ready for placing with no delays to the construction schedule. They required only field welding to secure them in place, and to provide a rigid, permanent construction, a factor which will help hold future maintenance to a minimum. Pipes and conduits could be run right through the open webs, and installation of recessed lighting fixtures was simplified.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

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Specified for the
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Fireplace in Service Plaza #6

Exterior View of Service Plaza #6

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Administration Building of Ohio Turnpike Commission. Architect: Stickle & Associates.

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The more diversified the types of buildings on your boards, the greater the creative challenge—to design character through contour and color. For this reason, more architects than ever before are specifying Ceramic Veneer for interiors as well as exteriors. This lighter weight, easily installed ceramic building material possesses unrivalled versatility. Federal Seaboard craftsmen custom-make Ceramic Veneer in the exact form, color and texture you select. With Ceramic Veneer you can create without restraint for it combines impressively with other materials. It enables you to keep initial costs in line, maintenance at a minimum. The richness and beauty can be retained indefinitely by simple soap-and-water washing. If you'd like latest information on how Ceramic Veneer can complement your design, write to us today.

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FEDERAL SEABOARD TERRA COTTA CORPORATION

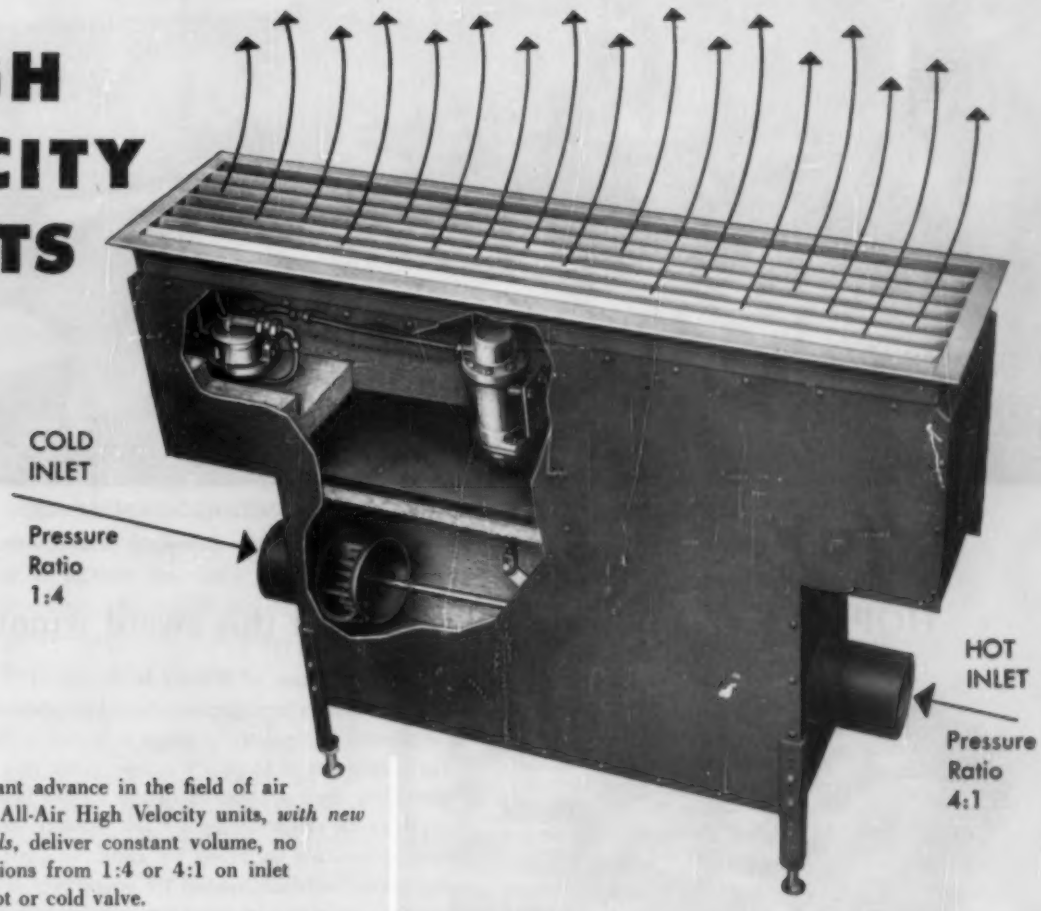
F S T C

10 East 40th Street, New York 16, N. Y.
PLANT AT PERTH AMBOY, NEW JERSEY

This school was a top award winner in the Fifth Annual

ANEMOSTAT *Announces . . . .*

ALL-AIR CONSTANT VOLUME HIGH VELOCITY UNITS



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- Assure scientific draft-free distribution of air.
- Are available in 100% induction units.
- Include Anemostat die-cast metal rocket-socket valves. More than 50,000 of these valves are in service, and not a single one has needed maintenance.
- Operate on standard 15 lb positive acting compressed air systems.

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Anemostat: The Pioneer of All-Air High Velocity Systems

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AC 1066

This school was a top award winner in the Fifth Annual Competition for better school design sponsored by the School Executive magazine.

WILBERT SNOW ELEMENTARY SCHOOL, MIDDLETOWN, CONN.

Architect: Warren H. Ashley *Contractor: Wadhams & May Company*

HOPE'S WINDOWS were chosen for this award winning school

● An unusual feature of Wilbert Snow School is that administrative offices, cafeteria facilities, a large gymnasium and the classroom units (see insert above) are all housed in separate buildings as shown in the small aerial view at left.

The adaptability of Hope's Windows to any type of building design is well illustrated by their application to the various buildings of this school. For example, in the classroom units a full window wall elevation, plus an upper ribbon of windows encircling the entire unit, provides abundant controlled daylight with healthful comfort for young eyes in each classroom. Note that a door for each classroom has been included as a safety factor and traffic convenience in the window wall elevation.

Write for our new Window Wall catalog No. 152P or call your local Hope's representative where additional information and planning assistance are always available without obligation.

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HOPE'S WINDOWS, INC., *Jamestown, N. Y.*

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GENERAL OFFICES IN SHELTON, WASHINGTON

SLO-61C

Floor above illustrates natural color variations in Birch Woodgrain KenRoyal Vinyl. Wall Base is brown Kencove.

New WOODGRAIN KENROYAL plank style vinyl... easy-to-clean resilient floor with the look of fine hardwood

Panel below shows Mahogany Woodgrain.

Something your clients have always wanted . . . the distinctive look of gleaming, freshly waxed wood floors without the care these demand. New Woodgrain KenRoyal vinyl flooring, more beautiful than wood itself, is now available in smart new 4"x36" plank style in Standard Gauge (.080") and ⅛" gauge. Stunning Birch and Mahogany colors provide the natural variation of shade found in hardwood flooring; give you new decorating freedom for every type of room.

Woodgrain KenRoyal is homogeneous vinyl; long-wearing, resilient, greaseproof, and one of the easiest floors to clean. Tile-deep colors won't wear off. It can be installed on any firm, smooth, clean interior surface; even over concrete that is in contact with the earth if KenGrade (660) Adhesive is used, providing slab is 12" above surrounding grade level and drainage is away from the building. For samples write on your letterhead to Kentile, Inc.

KENROYAL VINYL TILE by the makers of **KENTILE FLOORS**

Kentile, Inc., 58 2nd Avenue, Brooklyn 15, New York

Makers of KENTILE * KENCORK * KENRUBBER * KENFLEX * KENFLOR * KENROYAL *Reg. U. S. Pat. Off.

*FIRST COST *can be the* LEAST COST *if it's the* LAST COST

"INFO" for Architects and Builders

1 "AL Stainless Steels for Building"—12 pages on stainless grades, properties, forms, finishes, standard "specs," uses and advantages.

2 "Stainless Steels for Store Fronts and Building Entrances"—40 pages of valuable data on examples and details. AIA File No. 26D.

3 "Stainless Steel Curtain Walls"—A 24-page progress report on methods. AIA File No. 15-H-1.

Write for Details

Address Dept. PA-84

Take the lobbies of big buildings as an example, so many of them all agleam with stainless steel on walls, columns, elevator enclosures, etc.

They weren't built that way just to *spend* money. Stainless was used to SAVE money, because of all modern surfacing materials, nothing else is at one and the same time as hard, strong and lastingly beautiful—as resistant to heat, wear and corrosion—as easy to clean and keep clean as stainless steel. *Nothing else lasts as long and costs as little in the long run!*

Lobby interiors are only a case in point. The same advantage of long-term economy holds good for stainless steel curtain wall panels on building exteriors. Or stainless store fronts, marquees and entrances. Or stainless windows and doors, railings, grilles, roofs, drainage systems, etc.

• Wherever a surface or a product has to take a beating and *last*, AL Stainless can save you money. Let us give you any information or technical assistance you may need. ***Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.***

Make it BETTER-and LONGER LASTING-with

AL Stainless Steel

AL ALLEGHENY LUDLUM

WAD 5732A **Warehouse stocks carried by all Ryerson Steel plants**

Dramatic (unplanned) trial by fire

PERMANENT — Expanded Coralux perlite, the principal ingredient of Fesco Board, is dielectric, chemically inert and non-absorptive. As a result, Fesco Board will [illegible] rot, mildew, deteriorate. Mineral comp[illegible] will not support organic life of any[illegible]

EASILY HANDLED — Roofers are increasingly endorsing Fesco's exclusive, fast-laying 24" x 36" size because it is increasing daily production and improving workmanship [illegible]ever used.

NO BETTE[illegible] **AT ANY PRICE**

The [illegible] rties of Fesco Board are [illegible] lux perlite—of which [illegible] ntrained mineral is [illegible] incombustibility, [illegible] masonry, steel

[illegible] nnealed [illegible] ealed [illegible] nd [illegible] s

fu[illegible] [illegible] e of

burni[illegible] [illegible] xpanded

Coralux[illegible] [illegible] p to 4 hours.

Write tod[illegible] [illegible] data.

CARTONED — [illegible]

storage, and for jo[illegible]

tested Fesco Board is[illegible]

cartons, containing 60[illegible]

MOISTURE RESISTA[illegible]

DATA: Fesco Board has no capillary [illegible] wick-like attraction for moisture as do fibrous materials. Moisture resistance tests by a nationally known laboratory read as follows:

Thickness Inches	% Absorption By Volume	
	2 Hour	24 Hour
1	0.5	1.4

From 0 to 100% relative humidity no volume changes experienced in Fesco Board.

[illegible]ESISTANT — An internation-[illegible]n testing laboratory reports: "Upon [illegible]etion of the incubation no fungus growth [illegible] other deterioration was observed on the roof insulating material".

LIGHTWEIGHT — Easy-to-handle board units measure 1" x 24" x 36" and weigh approximately .9 lbs. per square foot — about one half the weight of most existing insulation boards.

INCOMBUSTIBLE — Reliable, authenticated laboratory tests show Fesco Board to have a flame spread factor of only 20.5, and smoke contribution factor of 0.

proves incombustibility of

FESCO®

ROOF DECK INSULATION

BOARD

Last winter fire broke out in one bay of a large industrial plant in Canada. The performance of Fesco Board in that fire will be of interest to every architect. Here are the facts:

THE ROOF was 4-ply, T & G, with 1" Fesco Board over vapor barrier on steel decking.

TEMPERATURES in the bay reached 1600°, heat so intense that steel roof members and steel decking buckled.

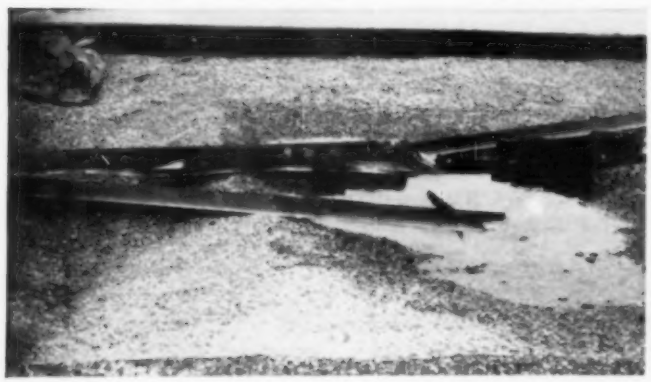
THE FIRE SOURCE was of such great volume and volatility that it raged for one hour and fifteen minutes before being extinguished.

FESCO BOARD remained intact, unfissured and unbroken, preventing flame tongues or fire balls from breaking through the roof and spreading fire to other bays.

FIRE DAMAGE was limited to the single bay where it originated.

A detailed case history of the performance of Fesco Board in this fire will be shown on request. Here is dramatic proof that Fesco Board provides an ideal combination of properties not found in any other roof deck insulation board. —— Write for sample and data.

Water from firemen's hose stands on unbroken deck over fire-damaged bay. Fesco prevented "break through" of fire, though 1600° temperatures buckled steel roof members and decking.



Roofing peeled back for inspection shows heat warped steel deck, charred vapor barrier, undamaged Fesco Board. Note strong bond of Fesco Board to felts—pried loose from board with spade.

F. E. SCHUNDLER & COMPANY, INC. 504 RAILROAD STREET • JOLIET, ILLINOIS

RATED FIREPROOF MATERIALS, ACOUSTICAL & INSULATING

Developers and producers of incombustible mineral products including Ebbtone Acoustical Tile, Fesco Insulation Board, Coralux Acoustical Plaster, Coralux Perlite Aggregates, Mica Pellet Vermiculite, High Temperature Insulating Blocks and Insulating Cement.

When you plan open areas, plan on carpet for 50% lower maintenance costs

Most clients would probably guess their floor space at far less than it is. Since a general office staff of ten people requires a minimum of 1,000 square feet, according to an article in *Management Review*, most of your clients have a lot of floor space to maintain.

The trend to more open planning in general offices means more heavy traffic areas. And here is where you can save your clients money. Specify carpet... because *carpet can save over 50%* in heavy traffic areas.

The cost of labor and equipment needed to keep non-carpeted floors at an accepted maintenance level averages $383 per 1,000 square feet annually, in heavy traffic areas. Carpet averages only $189 per 1,000 square feet a year – a clear saving of $194 a year for each 1,000 square feet, or 50.7%.

Industrial Sanitation Counselors, maintenance engineering specialists, whose clients include Lever Brothers, Ford, and many other blue-chip companies, based these figures on their own field work, which shows that carpet cleans so inexpensively because it cleans so easily.

Soil stays loose in the pile – routine vacuuming can easily remove it. Less labor and equipment are needed – just one operator and one operation. Dirt doesn't grind in and there's no gloss to wear off.

Carpet looks better longer, too. It's amazing durability is due to the resiliency that makes it yield with pressure, spring back when pressure is released. Carpet looks soft – wears hard. In addition, carpet reduces noise and provides slip-proof footing.

Send for your file copy of "Cutting Costs With Carpet." Write Dept. A1, Carpet Institute, Inc., 350 Fifth Avenue, New York 1, New York.

Specify carpet designed and made for the American way of life by these American manufacturers

Artloom • Beattie • Bigelow • Cabin Crafts-Needletuft • Downs • Firth • Gulistan • Hardwick & Magee • Hightstown • Holmes Karastan • Lees • Magee • Masland • Mohawk • Nye-Wait • Philadelphia Carpet • Roxbury • Sanford • Alexander Smith

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for *"CONTROLLED CLIMATE"*

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- Uses less fuel. Cuts costs up to 40%.
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Send me free VARI-VAC bulletin and specifications.

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Company.....
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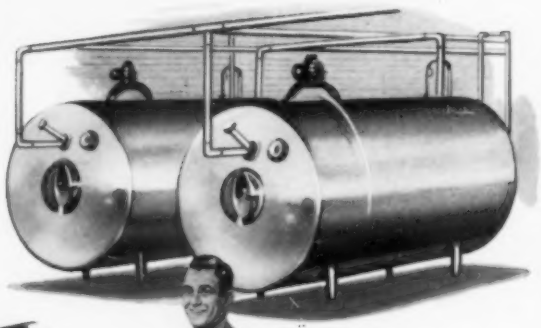
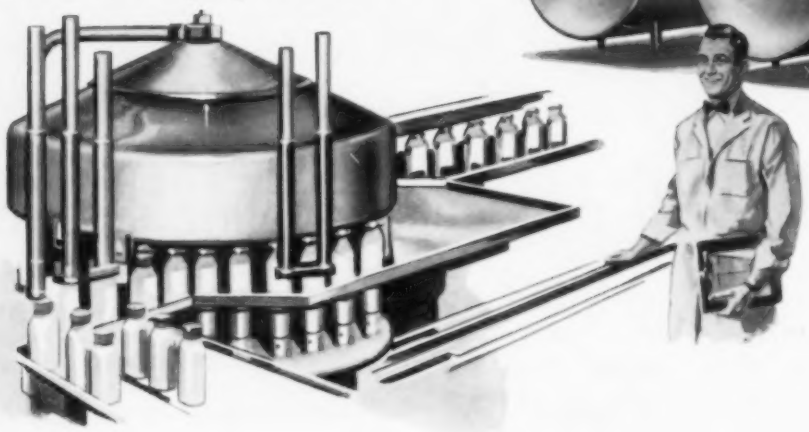
City..... Zone..... State.....

from cow to container...

stainless steel
safeguards the purity of your dairy products





Dairymen and milk-product plant operators know that Stainless Steel is the only metal that year after year effectively resists acid corrosion. It can easily be kept clean and sterile and imparts no odor in contact with the product.

Through all the stages of milking, transportation, processing and packaging Stainless Steel completely safeguards the delicate flavor and highly sensitive qualities of milk and cream, and milk products like butter, cheese, ice cream and powdered milk.

The delicious taste of your dairy products and the assurance of their purity is due to the dairyman's extreme care and scientific methods and the use of Stainless Steel equipment.

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For the product you make today and the product you plan for tomorrow specify McLouth high quality sheet and strip Stainless Steel

McLouth Steel Corporation **DETROIT, MICHIGAN • MANUFACTURERS OF STAINLESS AND CARBON STEELS**

Plan for tomorrow...today!

Plan with Brunswick movable classroom cabinets

The value of a new school is measured by its ability to meet tomorrow's requirements as well as today's. That's why more and more architects and school planners are specifying Brunswick movable cabinets. They eliminate the restrictions of built-in millwork . . . can be rearranged to meet changing demands. Your Brunswick representative is at your service, *now!* Write: The Brunswick-Balke-Collender Company, 623 South Wabash Avenue, Chicago 5, Illinois.

JUST ONE LINE CONTINUES TO SET THE PACE . . . IT'S **Brunswick**

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Day-Brite Lighting in the

"Finger" area connecting terminal building with aircraft loading stations

Main terminal area, showing ticket counters, newsstand, shops

Incoming baggage terminal area, lighted with Day-Brite recessed fixtures

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Accorded the first honor award by the AIA, the new St. Louis Air Terminal has been described as the "first appropriate terminal in the age of air travel." Called the Grand Central of the Air, it is designed throughout to meet the highest standards of quality. Naturally, Day-Brite lighting fixtures were specified and installed.

Before you decide on any lighting fixtures for any type of installation, consult your Day-Brite representative. You'll find him in your classified phone directory . . . Send for *new* 12-page Architectural File.

Day-Brite Lighting, Inc.

"DECIDEDLY BETTER"
DAY-BRITE
Lighting Fixtures

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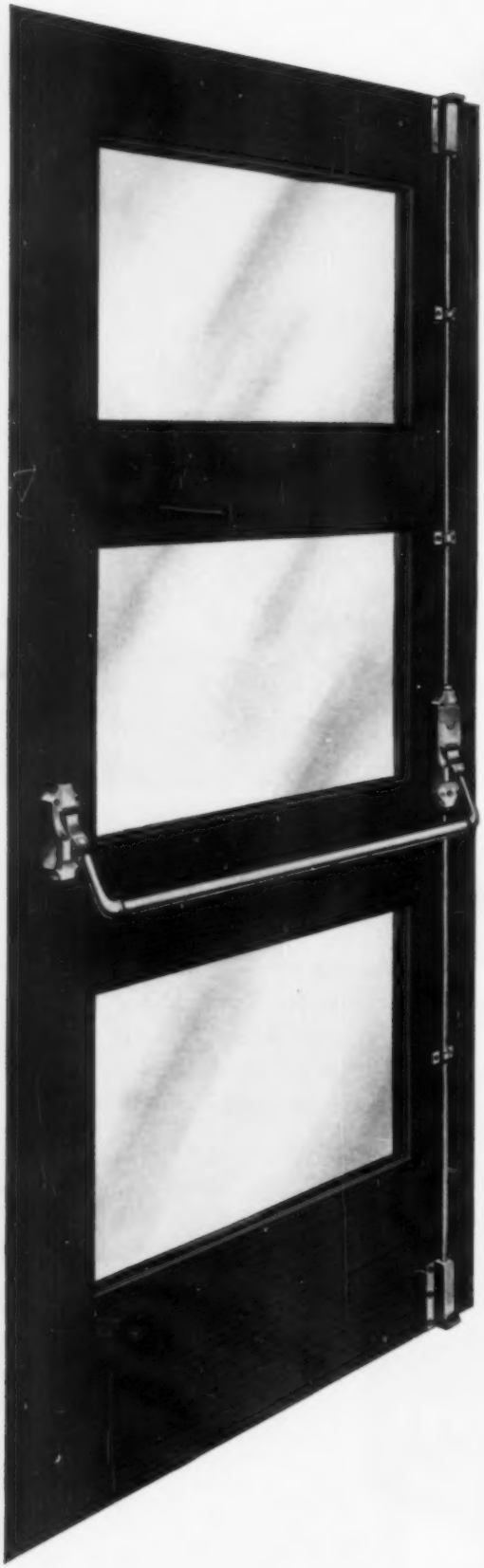
NATION'S LARGEST MANUFACTURER OF COMMERCIAL AND INDUSTRIAL LIGHTING EQUIPMENT

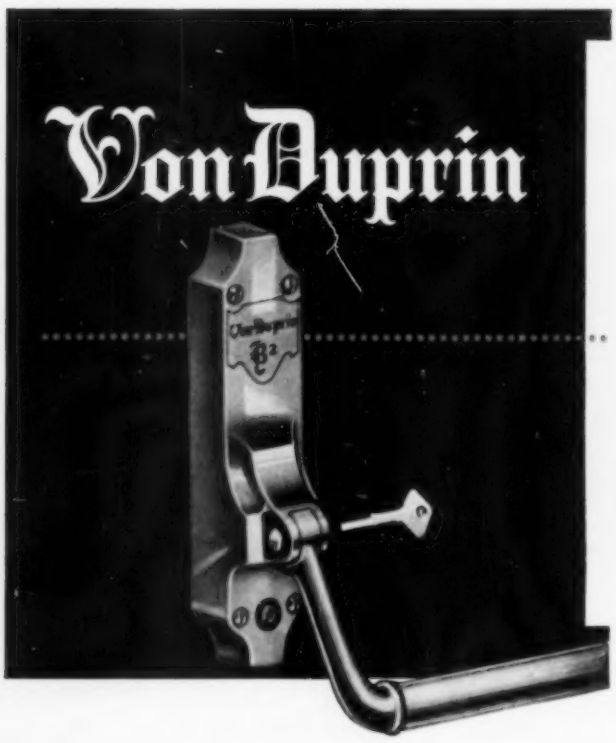


"THE SAFE

Increasing numbers of architects and other safety-minded officials the country over specify Von Duprin exit devices to provide "the safe way out!" And for good reason: Von Duprin's unequalled record of performance! Even under the most adverse conditions, these devices operate efficiently . . . with only normal maintenance.

Since originating fire and panic exit devices in 1908, Von Duprin has consistently paced the field in new designs, incorporating new materials and production methods.

Whether effectively handling the daily flow of traffic . . . or standing ready for that "once-in-a-lifetime" emergency, Von Duprin-equipped doors are your answer to safe, sure exit.

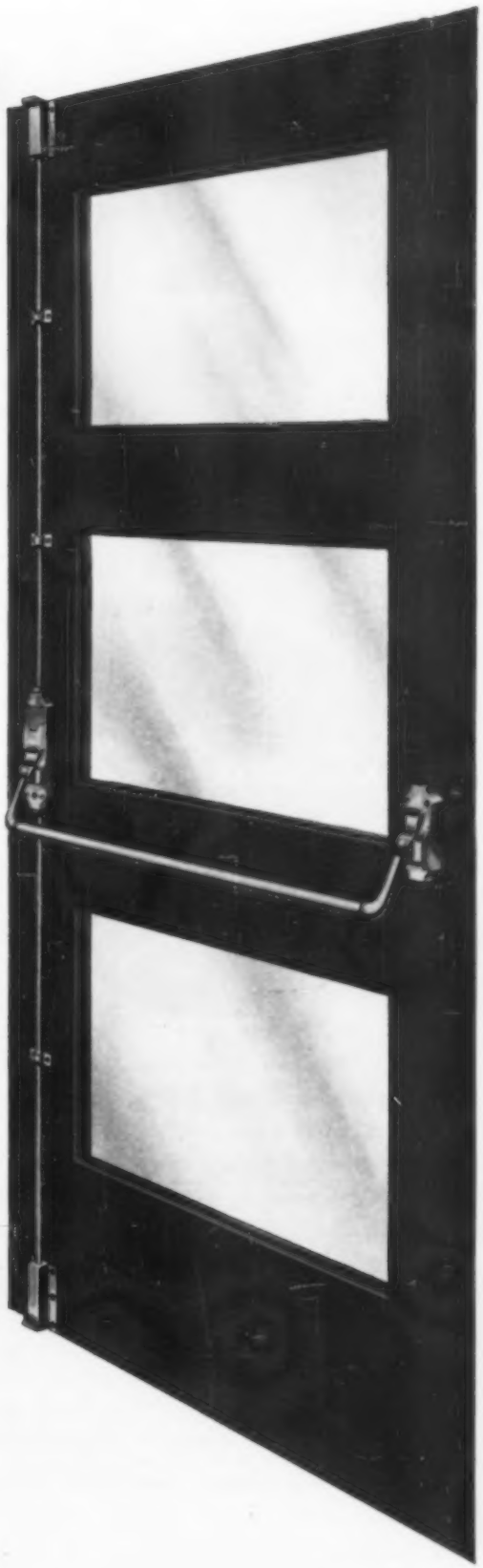


WAY OUT!"

The vertical rod Type B² device, illustrated here, is a part of the complete Von Duprin line of exit devices and auxiliary hardware designed to meet every exit requirement.

For complete information, or for expert advice on specific exit needs, call on your Von Duprin "Exit Specialist"—either a factory representative or a selected builders' hardware distributor.

VONNEGUT HARDWARE CO.
VON DUPRIN DIVISION
Indianapolis 9, Indiana



it's NEW...
it's WIDE...
it's BRIGHT

MicroRold® STAINLESS SHEET

Type 430 Bright Finish

up to 48" WIDE

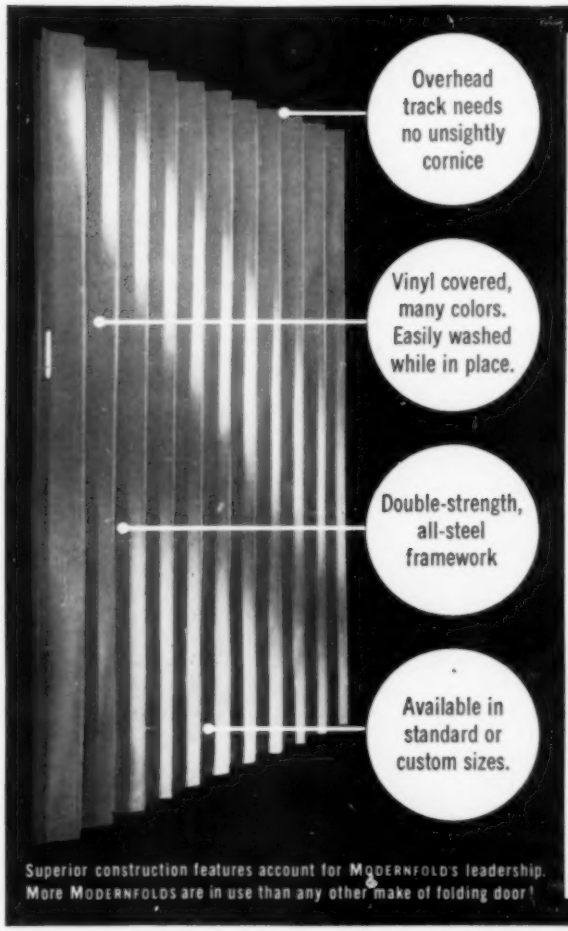
BRIGHTER THAN EVER!—MicroRold stainless steel Type 430 in the NEW Bright Finish is now immediately available in sheets up to 48" wide offering new usefulness and economy in stainless fabrication. Produced with the same micro-accuracy of gauge for which MicroRold 36" is well known, Type 430 Bright up to 48" wide gives greater latitude in applications for quality stainless steel.

MicroRold 430 is also available in the regular commercial finishes and MicroRold stainless in other grades are now produced up to 48" wide. Complete details sent on request.

Washington Steel *Corporation*

12-M WOODLAND AVENUE WASHINGTON, PA.

are folding doors faddish...or functional?


Overhead track needs no unsightly cornice
Vinyl covered, many colors. Easily washed while in place.
Double-strength, all-steel framework
Available in standard or custom sizes.

Superior construction features account for MODERNFOLD'S leadership. More MODERNFOLDS are in use than any other make of folding door!

what's behind the growing popularity of MODERNFOLD DOORS?

Ask any of your friends in the profession why *he* has used MODERNFOLD Doors. Was it to save space? Was it as a room divider? Or did he devise some completely *new* application for this door?

In recent years, architects have seen how MODERNFOLD allows them greater freedom of design by eliminating door-swing. They have witnessed the long service life of this door. And they are employing them in commercial, residential and institutional designs.

How can MODERNFOLD Doors best serve *you?* When your MODERNFOLD distributor shows you their many quality features, your imagination will be stimulated to find new applications for them.

modernfold doors have no equal

MODERNFOLD distributors are listed under "Doors" in city classified telephone directories

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New Castle Products, Inc., Dept. M-31, New Castle, Indiana
Please send me full information on MODERNFOLD Doors.

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BUSINESS ADDRESS_____

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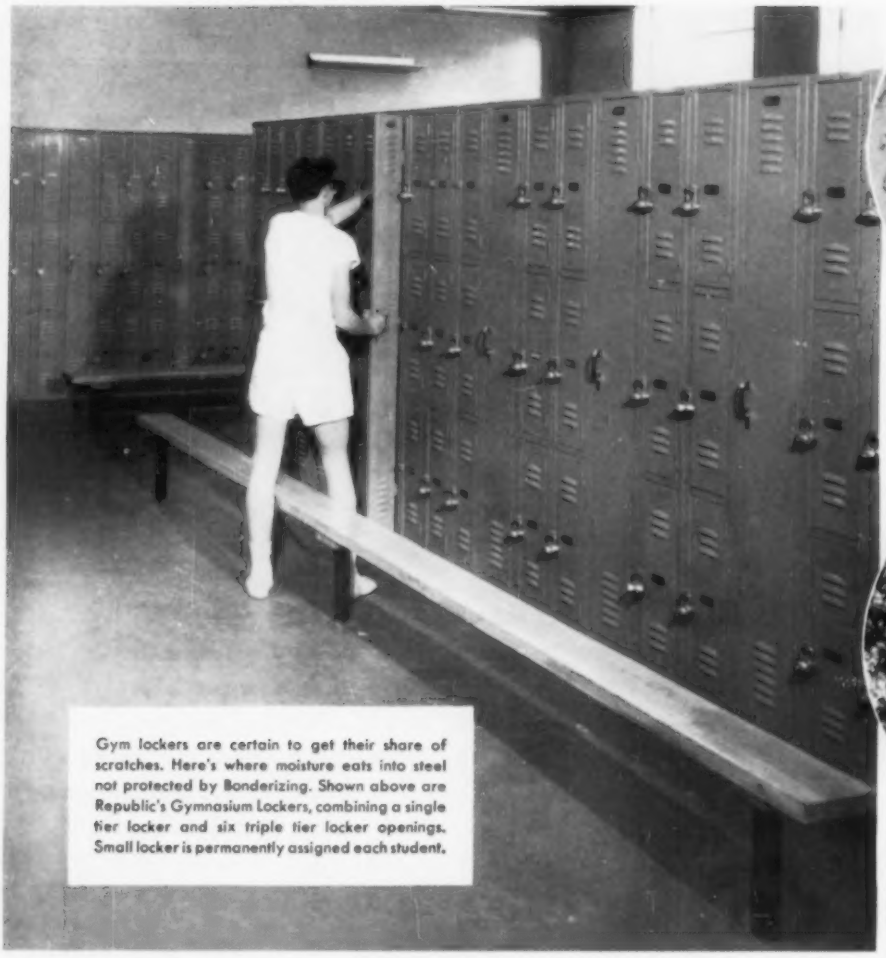
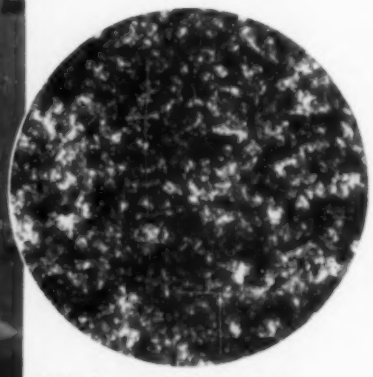
CITY_____ ZONE____ STATE_____

NOW...Republic Steel Lockers to preserve fine finish



Gym lockers are certain to get their share of scratches. Here's where moisture eats into steel not protected by Bonderizing. Shown above are Republic's Gymnasium Lockers, combining a single tier locker and six triple tier locker openings. Small locker is permanently assigned each student.

Photomicrograph, 100 times enlarged, of a piece of plain sheet steel. The surface is glossy smooth with no porosity to give the finish a foothold.



Photomicrograph, 100 times enlarged, of Bonderized steel. The surface is crystalline phosphate. Enamel will penetrate microscopic pores, dry, and become securely anchored to the metal.

REPUBLIC

REPUBLIC STEEL

World's Widest Range of Standard Steels

are BONDERIZED and protect against rust

Bumps, scratches, moisture—whatever the punishment, a Republic Steel Locker can take it and still retain a glistening, handsome finish that will not chip, peel or flake off.

That's because the steel is now Bonderized to provide a superior base for anchoring the enamel finish to the steel surface and, at the same time, to guard against the spreading of under-finish corrosion which eventually causes peeling and flaking.

Republic Standard Steel Lockers offer three locking systems—are available in many types and sizes for every conceivable storage requirement.

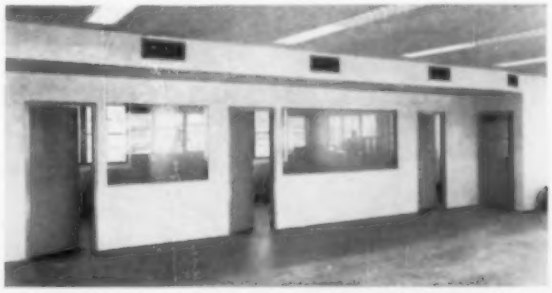
One of the world's biggest locker manufacturers, Republic's Berger Division has behind it more than 65 years of locker-making know-how—plus thousands of successful installations. This is the kind of experience you can always depend on when you want the best in lockers.

Berger offers architects and school administrators a complete planning and installation service, too—from technical planning and engineering assistance to full responsibility for proper installation—right down to the final bolt. Get the facts from your Berger representative. Or mail coupon for illustrated booklet giving specifications and prices.

STEEL

and Steel Products

ALSO BONDERIZED FOR LASTING BEAUTY is Republic's big shelving line, made by Berger. Shown above are Book Shelf Units—sturdy, attractive, and widely used in school libraries. Republic makes a complete line of shelving for every school requirement from the stock room to the shop. Berger's shelving experts will be glad to help you plan. Send coupon for facts.



BONDERIZED TRUSCON STEEL DOORS CAN BE PAINTED TO MATCH any color decor. They refuse to stick or bind because steel can't swell or warp. Perfect for schools, offices and other institutions. Truscon makes sound-deadened Interior Swing Doors and Sliding Doors that glide noiselessly on nylon rollers. Send coupon for literature.

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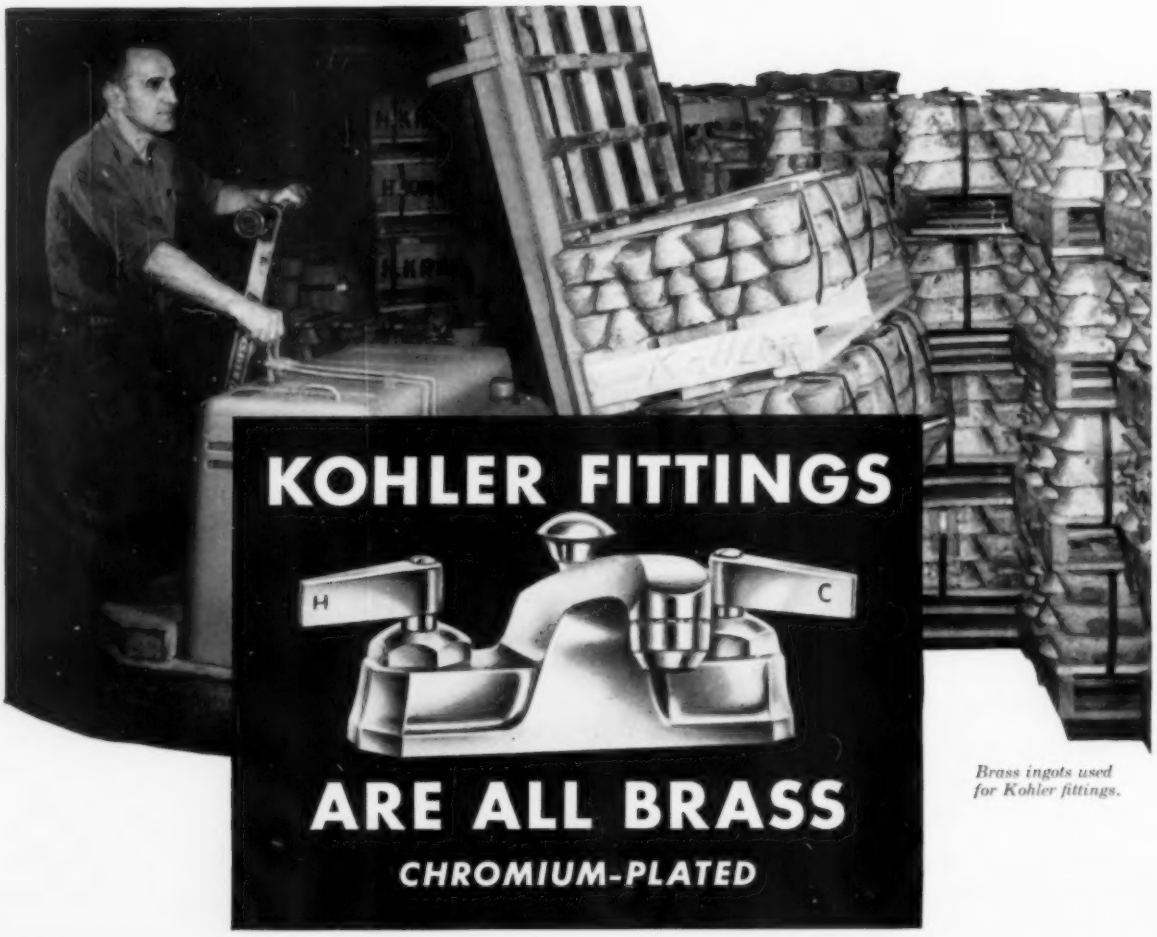
Please send me information on:
- ☐ Republic Steel Lockers with new Bonderizing
- ☐ Republic Steel Shelving
- ☐ Truscon Steel Doors

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____



Brass ingots used for Kohler fittings.

for higher corrosion resistance, longer wear, better appearance

First Quality Only

All Kohler fittings are water tested, under greater than normal pressure, for freedom of action, accurate control of water flow, and absence of leakage.

The test of time has proved that brass is the best material available for plumbing fittings. It takes and holds chromium plating better than any other material—resulting in a bright finish of jewel-like beauty. It is strong and resists corrosion, which assures extra years of trouble-free service.

In the manufacture of Kohler fittings, new brass of high copper content, purchased from reputable suppliers, is used. The high quality and purity are maintained through frequent, accurate chemical and physical tests.

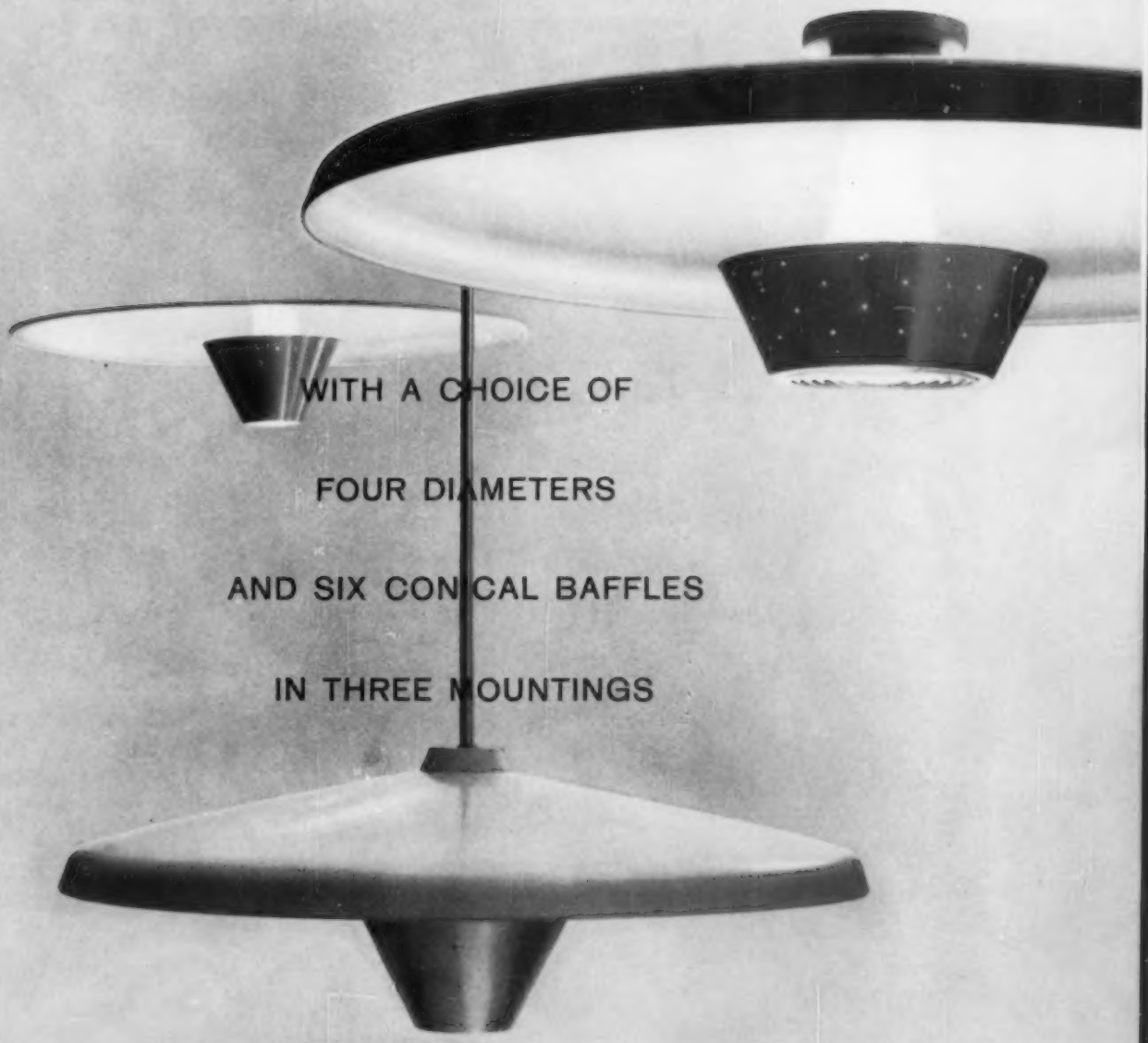
When you point out these facts to your customers you tell them things they want to know—and sell them quality they want to own.

Kohler Co., Kohler, Wisconsin. Established 1873

KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS • AIR-COOLED ENGINES • PRECISION CONTROLS

GOTHAM'S NEW DOMELITE SERIES



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FOUR DIAMETERS

AND SIX CONICAL BAFFLES

IN THREE MOUNTINGS

AVAILABLE IN 63 VARIATIONS

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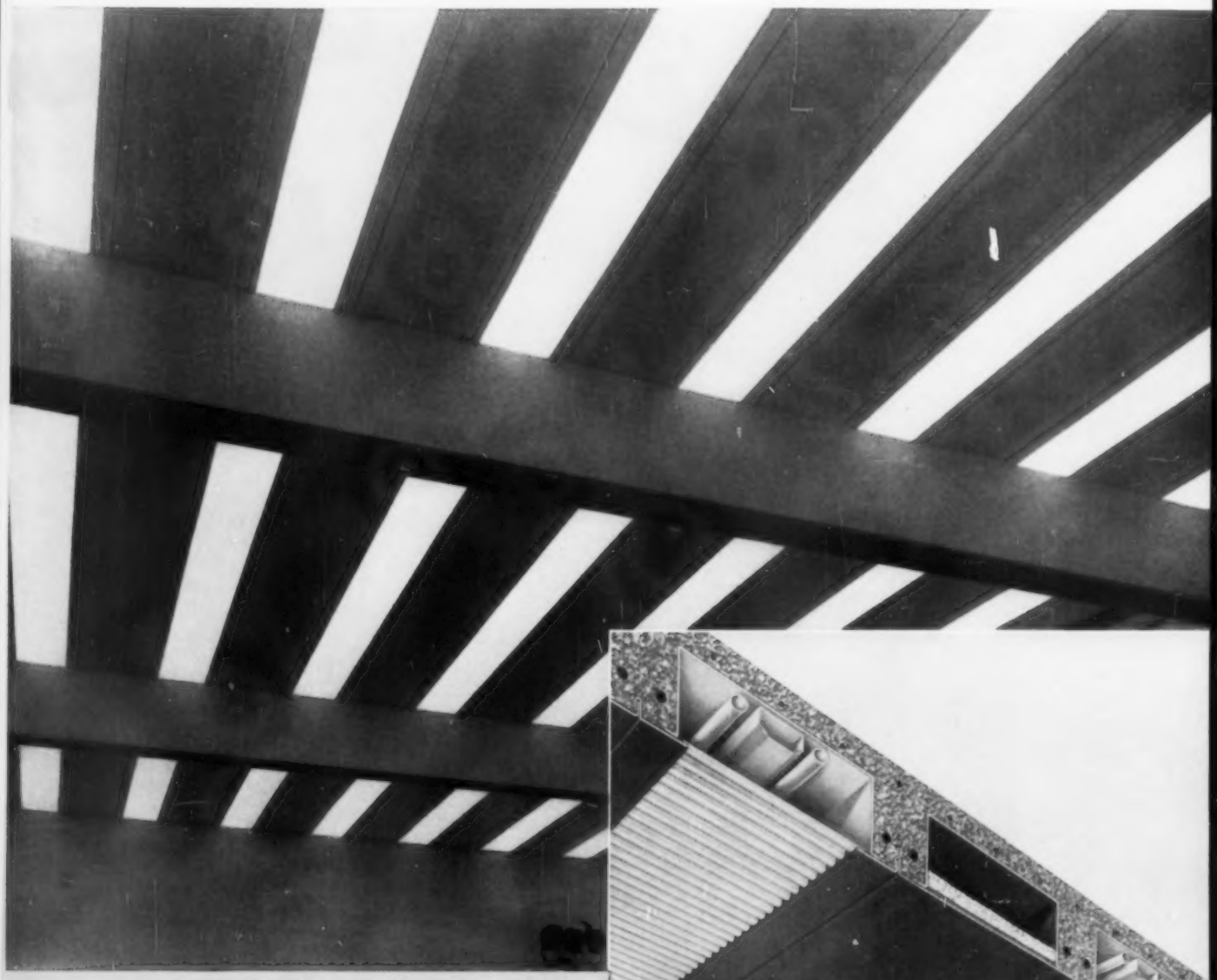
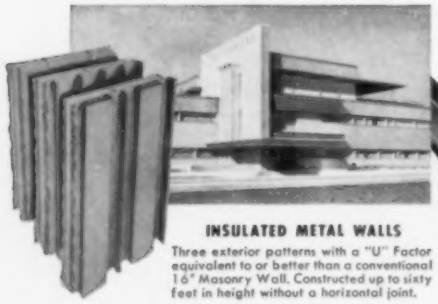
GOTHAM LIGHTING CORPORATION

ACOUSTICAL and TROFFER Ceiling F



Illustrated above is the Ceiling of the Auditorium in the Eugenie Mettetal School, Detroit, Michigan. In this modern Grade School, Mahon Acoustical and Troffer Forms were employed to provide the Acoustical Treatment and the Recessed Lighting facilities in 25 classrooms, the auditorium, 24 other special purpose rooms and offices, lobbies and all corridors of the first floor. Shreve, Walker & Associates Inc., Architects. Alfred A. Smith, Inc., Gen. Contrs.



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Three exterior patterns with a "U" Factor equivalent to or better than a conventional 16" Masonry Wall. Constructed up to sixty feet in height without a horizontal joint.

STEEL ROOF DECKS

Standard Double Rib, Wide-Flange Double Rib, and Long Span M-Decks, which can be furnished perforated and fitted to provide an efficient acoustical ceiling.

ROLLING STEEL DOORS

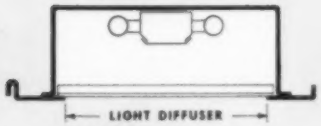
Standard Manually, Mechanically or Power Operated Rolling Steel Doors and Grilles. Underwriters' Labeled Automatic Rolling Steel Fire Doors and Fire Shutters.

FORMS . . . and Long Span M-DECKS

for Structural Roofs and Acoustical Ceilings Combined

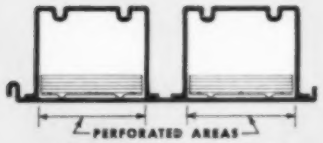
MAHON
ACOUSTICAL and TROFFER FORMS

SECTION M1A (Acoustical)



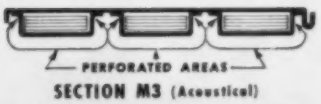
SECTION M1T (Troffer)

MAHON
ACOUSTI-STRUCTURAL
LONG-SPAN M-DECK SECTIONS

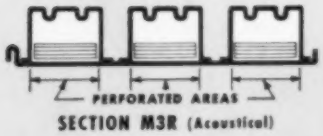


SECTION M2SR (Acoustical)

SECTION M2 (Acoustical)



SECTION M3 (Acoustical)



SECTION M3R (Acoustical)

Mahon Acoustical and Troffer Forms provide an effective acoustical ceiling and recessed lighting as well as serving as the permanent forms for concrete joist and slab construction of floors and roofs. These are long-span units which are integrated with and supported by conventional concrete beams at each end. Only a minimum of temporary shoring is required at mid-span during pouring and curing of concrete.

This is permanent, fireproof construction which has a broad application in modern buildings . . . it is used extensively for school classrooms, auditoriums and in other rooms where an acoustical ceiling with recessed lighting is desirable. Either plastic or glass diffusers may be inserted in the Troffer unit.

M-Decks Serve as the Structural Unit, the Interior Finish Material and the Acoustical Treatment — all in One Package

Mahon Long-Span M-Deck Sections are designed and engineered to provide a structural roof and ceiling unit which may also include the acoustical treatment. These M-Deck Sections are ideal for long-span roof construction in such structures as auditoriums, armories, sports arenas and other buildings where it is desirable to eliminate roof purlins and span from truss to truss. This produces a neat, continuous flat metal ceiling surface—all or any percentage of which can be acoustically treated. If recessed lighting is desired, Troffer Sections can be included in this type of roof construction in any ratio to meet specific lighting requirements.

All Mahon Long-Span M-Deck Sections can be furnished with bottom metal perforated and sound absorbing material inserted to provide excellent acoustical ceilings. Noise Reduction Coefficients range up to .85 in Mahon Sections recommended for this use.

Mahon Acoustical and Troffer Forms, and all Mahon M-Deck Sections, are roll-formed from Galvanized, Structural Quality Steel. Exposed surfaces in ceilings can be readily painted to harmonize with the interior decor.

Some of these Mahon Forms and Structural Sections do not appear in the current Sweet's Files. Why not have a Mahon sales engineer call and bring you up to date on Mahon products now available for Floor, Roof and Ceiling Construction?

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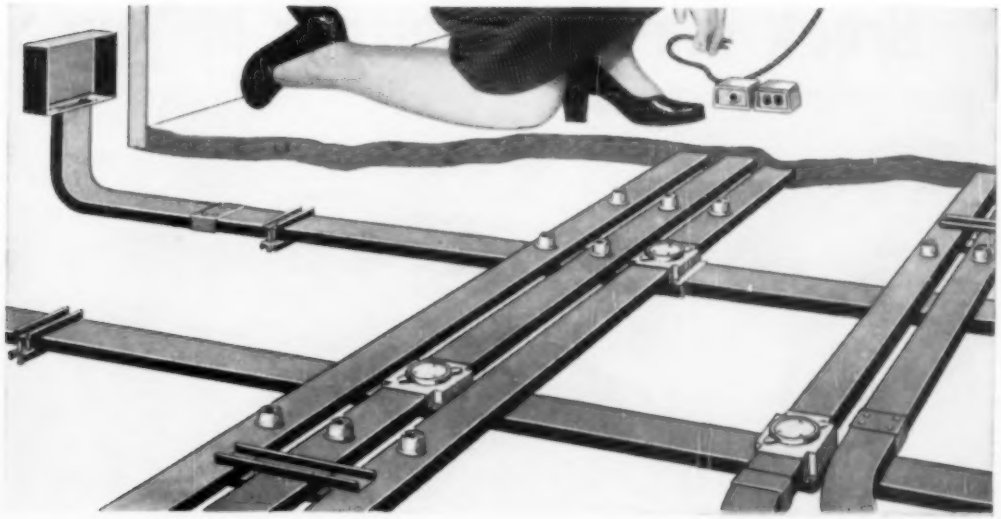
Determine which of the three systems shown at the right is best suited to solve your power distribution problems now and in the future. For complete details, get in touch with your nearest General Electric Construction Materials district office or write Section C61-268, Construction Materials Division, General Electric Co., Bridgeport 2, Conn.

General Electric underfloor wiring—3 SYSTEMS

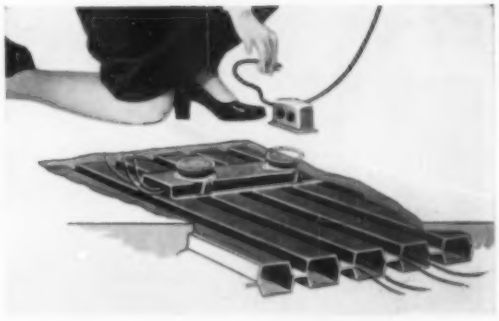


1. for two-level distribution—General Electric's New Steel System

This new all-steel system provides complete flexibility in layout and design because there are no limitations to the duct pattern in either the feeding or distribution portion of this two-level system. Use as many ducts as you like. Separation of services allows unobstructed runs with no crossovers or crossunders. Wire pulling is easier and circuits are easy to trace. New steel duct (4-square inch cross-sectional area) provides for increased wiring capacity.

2. for single-level distribution—General Electric Fiberduct

Here's a widely accepted underfloor electrical raceway system that provides a good distribution of electrical outlets for many office operations. Yet the cost is low because Fiberduct is made of a strong, yet inexpensive, fibrous compound that can be sawed and fitted easily.



3. for cellular construction—General Electric Q-Floor Wiring

Q-Floor wiring is designed for installation in cellular steel subflooring. It makes it possible to convert every cell into a raceway . . . makes every square foot of floor available for present and future electrical use. No costly alterations, no litter, no tie-up of space or lengthy interruption of office routine, no matter how much or how often your electrical requirements change.

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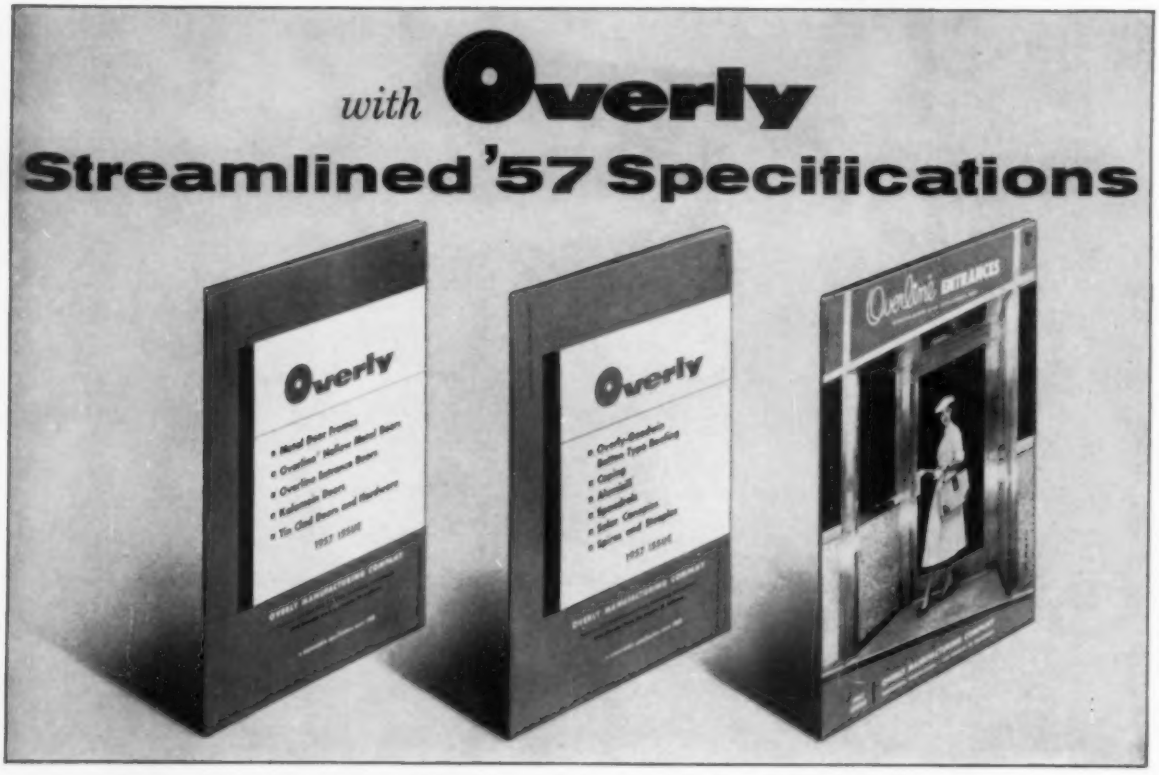

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OLD	NEW
Frames shall be manufactured of (specify gauge; 18-16-14-12 or 10) cold rolled, pickled and annealed steel. Frames shall be unit type welded construction, with all angles, molds, returns and miters neatly welded, and all weld beads ground smooth for finishing.	Frames: (18, 16, 14, 12, or 10) gage cold rolled, pickled annealed steel; unit type welded construction, with angles, molds, returns and miters neatly welded; weld beads ground smooth.

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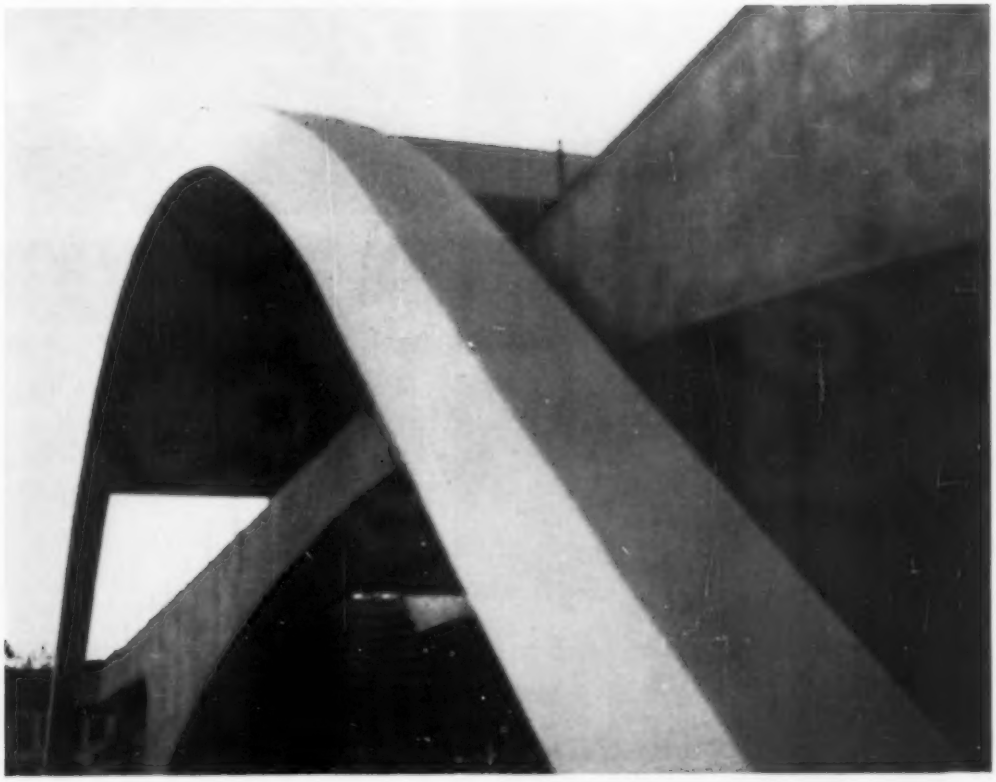
REPORT FROM BRAZIL

RIO DE JANEIRO, BRAZIL—The present need for residential, cultural, and industrial buildings in this vast country has created construction activity of such a formidable scale that it must, undoubtedly, overtax the capabilities of a young and brave building industry. Added to this, a project for a new Federal Capital to be situated in the geographic center of Brazil, in the State of Goiás, is going ahead; and a competition for a pilot plan of "Brazilia" was opened last September to Brazilian planners. Here we present a few pictures showing the variety of tasks that face the Brazilian architects, hoping to achieve a visual impact rather than a systematic survey which the limitation of space would have rendered futile. A bell of the colonial church of São Antonio and the reinforced-concrete frame of a youth club, designed by Oscar Niemeyer (*bottom*), are situated in Diamantina, an old settlement on a high plateau and the birthplace of President Kubitschek. The picture of the amphitheater (*below*) of a secondary school in Belo Horizonte, also designed by Niemeyer, is characteristic of the urgent need for new buildings; the classrooms are in full use, teeming with students, while the auditorium and the grounds are being completed.



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Showroom, repair shop, and offices for a sales organization of agricultural machinery in Rio (1) was designed by Roberto Brothers. The main hall, spanned by laminated-wood arches, 145′ wide at the base and 66′ high, offers continuous exhibition space extending to the outdoors. A small gallery allows the clients to have a general view of the machines from above and to see demonstrations on the grounds. The apartments (2) situated at the Eduardo Guinle Park in Rio express Lucio Costa's search for refinements in form and amenities which are equivalent, if not similar, to those of the colonial buildings. "Conjunto Governador Kubitschek" in Belo Horizonte (3), designed by Oscar Niemeyer, will contain 1130 dwelling units and shops, plus a theater and a garage, in two super-blocks of 22 and 36 stories.

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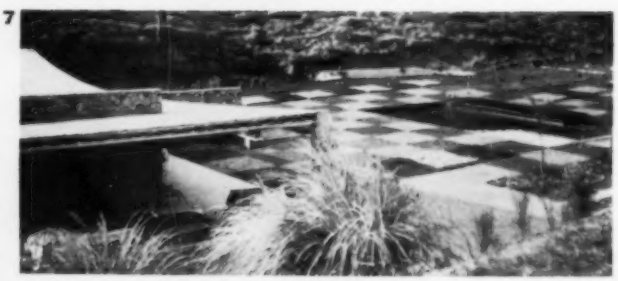

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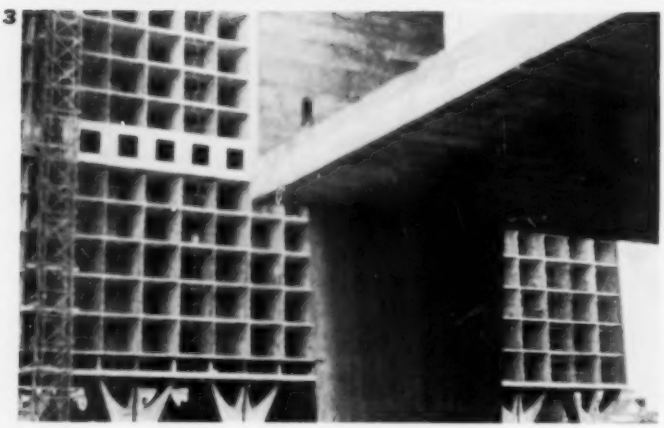
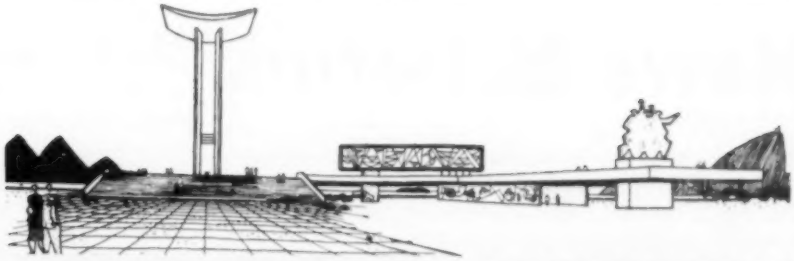


3

Roberto Burle-Marx, famed landscape designer (also architect and painter), has in his nursery west of Rio an amazing collection of tropical flora including many "unclassified" varieties from the Amazon and West Africa. Shown here is Burle-Marx (4) in front of one of the nursery buildings; a fragment (5) of the colonial statuary of which he is an ardent collector; a philodendron (6) in the process of devouring a tree; and a garden (7) for a residence by Oscar Niemeyer.



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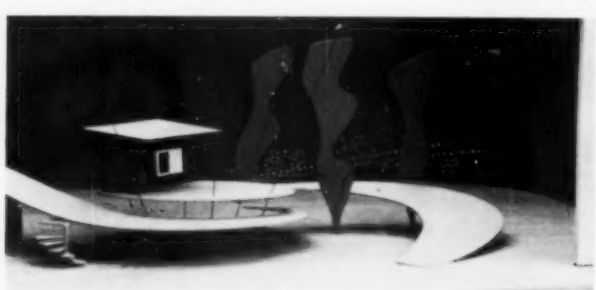
The winning design for the National Monument (8) is to be built in downtown Rio, facing the Bay of Guanabara and next to Affonso Eduardo Reidy's rising Museum of Modern Art. Architect Marcos Konder says that he wished to express in this design a pure "architectural" space. Sculptor Alfredo Ceschiatti, Painter Anisio Medeiros, and Stained-Glass Specialist Julio Catelli Filho are the co-winning artists. Firmino Saldanha, who divides his time between architecture and painting, designed the buildings for an oil refinery (9) in collaboration with H. Kaulino and Bina Fonyat. The oil painting (10) is typical of Saldanha's work: a heavy black framework containing subtle forms of rich, delicate tones. He finished recently a 6'x20' mural for the Banco Real Brasileiro in Rio. The model of the stage setting (11) was designed by Oscar Niemeyer for the lyrical drama of Vinicio Moraes, "Orfeu da Conceição" (The Black Orpheus, in free translation) when the world's premiere of the play took place at the Municipal Theater of Rio (a small-scale Paris Opera) the 25th of last September. The building in process of construction (12) is for the National Faculty of Architecture and is situated on the Governor's Island of Rio as part of the "University City." Designed by a group of young architects with an inclination for a painstaking thoroughness and under the leadership of Jorge Moreira this school is, perhaps, the most ambitious undertaking of its kind and reflects the national interest in architecture. The school not only will accommodate 1000 students with studios, classrooms, amphitheaters, and club facilities, but also it will provide space for a large library, laboratories for the testing of materials, model-making shops, and a museum of comparative architecture.

STAMO PAPADAKI



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News Bulletins

• To stimulate interest in aluminum's structural and esthetic possibilities, Reynolds Metal Company will grant annual international award of $25,000 to architect making most significant contribution to use of aluminum in building field. In conjunction with awards notice, release of Reynolds' impressive two-volume publication, Aluminum in Modern Architecture, was announced.

• Building for higher education in New York is booming. Barnard College opened campaign to raise $1.8 million for new five-story library and classroom building designed by Architects O'Connor & Kilham. . . . Loeb Student Center, $3-millions addition to New York University facilities, will feature brick, marble, and glass exterior as well as landscaped terrace area. Architects: Harrison & Abramovitz. . . . Ground was broken for two "super-schools" costing total $16.5-millions—High School of Science designed by Architects Emery Roth & Sons will accommodate 3000 students. Fashion Institute of Technology, blue-and-gold aluminum structure designed by Architects Young, Moscowitz & Rosenberg, will be first joint city-state community college.

• Parsons School of Design, New York, awarded medals to 11 internationally known designers in decorative and fine arts at 60th anniversary dinner. Among those cited were: Junzo Yoshimura, Japanese architect and professor at Tokyo University of Arts; Eleanor LeMaire and Eleanor McMillen Brown, U.S. interior designers.

• First annual convention of National Swimming Pool Institute was held in Chicago, Dec. 3-4. . . . First annual Home Improvement Products Show will be held Feb. 4-6, at Hotel Statler, N. Y. . . . United States World Trade Fair, opening in New York City Coliseum, Apr. 14-27, is expected to attract more than 100,000 buyers. . . . New York Society of Architects culminated 50th anniversary celebration at annual meeting held Dec. 1.

• John K. Neebe (right) Illinois architect since 1897 when first Architectural Act in U.S. was inaugurated, celebrated his 100th birthday, Nov. 17. German-born, member of Illinois Society of Architects since 1914, he still maintains office of general practice and active interest in architectural profession.

• Major elements of proposed Lincoln Square Cultural Center for New York's West Side, formerly restricted to triangular segment on Broadway (preliminary model, right), now have been moved to large square behind triangle and off main traffic in revised plan. New scheme will utilize four halls of varying size as originally contemplated but 2200-seat theater, attached to proposed Philharmonic Concert Hall, is now intended primarily for ballet and 1000-seat hall, attached to proposed Metropolitan Opera House, will be designed as repertory theater. John D. Rockefeller III, chairman of exploratory committee for center's development, revealed proposal for ten-year $10-millions fund to encourage and underwrite "new and experimental" works in various art forms. Center is expected to be international focal point for performing arts. Skidmore, Owings & Merrill are co-ordinating architects. Other architectural firms participating are: Chapman, Evans & Delehanty; Eggers & Higgins; Harrison & Abramovitz; S. J. Kessler & Sons; Pereira & Luckman; Vorhees, Walker, Smith & Smith.

• Tetsuro Yoshida, Japanese architect and teacher who endeavored to fuse traditional concepts with contemporary design elements both in his work and teaching, died in Tokyo, Sept. 8. Yoshida (left) is best known in America for two books on traditional Japanese buildings in which he attempted to separate their formal architectural merits from sentimental values and picturesque appeal of garden relationships.

• Paul Lester Wiener, New York, was awarded diploma of Professor Honoris Causa by Faculty of Engineering, University of San Carlos, Guatemala, for distinguished service in his field.

• NAHB expects home costs in 1957 to increase by 3.4%. . . . Economic experts predict large rise in home construction during next 25 years.

• Contract for preliminary architectural plans denotes first definite step taken by United Engineering Trustees, Inc., toward construction of Engineering Societies Center in mid-Manhattan. At recent meeting, Shreve, Lamb & Harmon Associates were named architects for project (see NEWS BULLETINS August 1956 P/A). . . . Already scheduled for construction, Carbide & Carbon Chemicals Company engineering building in South Charleston, W. Va., is designed by Fellheimer & Wagner to provide space for 500 engineers.

• Competition to encourage and recognize Products Literature of technical value to architects is open to manufacturers and associations publishing such data. Entries due Jan. 21. Write: Producers' Council, Inc., 2029 K St., N. W., Washington 6, D.C.

Washington Report

by Frederick Gutheim

The newly organized Democratic Congress will almost certainly take another look at the so-called lease-purchase program. This concerted attack on long-deferred Federal building needs was commenced more than two years ago. So far it has exactly one building under contract. To sketch the statistical picture rapidly, this solitary building project is one of six on which bids had been invited. The other five bids were rejected. Six additional projects are now out to bid. Architectural and engineering contracts have been let on 40 jobs. The Senate Public Buildings Committee (which must approve every project) has acted on more than 100, and another batch of nearly 100 will be ready for committee action when they meet this January. All this is part of an officially estimated backlog of need of about 5000 Federal buildings.

The first thing Congress will find is that it is not entirely blameless in these delays. Congressional desire to retain administrative control of the program by approving each individual project, itself an objectionable interference with the work of the executive branch of the government, has been the cause of much delay. The Bureau of the Budget, which must also approve each project before it goes to Congress, is another bottleneck. But the real difficulty lies deeper, in the financing of these jobs. While the law imposes no ceiling on interest rates, the Comptroller General has indicated that his notion of government economy will not permit rates higher than 4 percent. This explains the program's unpopularity with investors, the lack of bids, and the slow progress. It also explains why the General Services Administration has just changed its routine, and is calling for package bids on financing and construction; is trying to make mortgage-servicing easier by allowing bids on terms of 10 or 25 years; and proposes to pay taxes direct to local authorities.

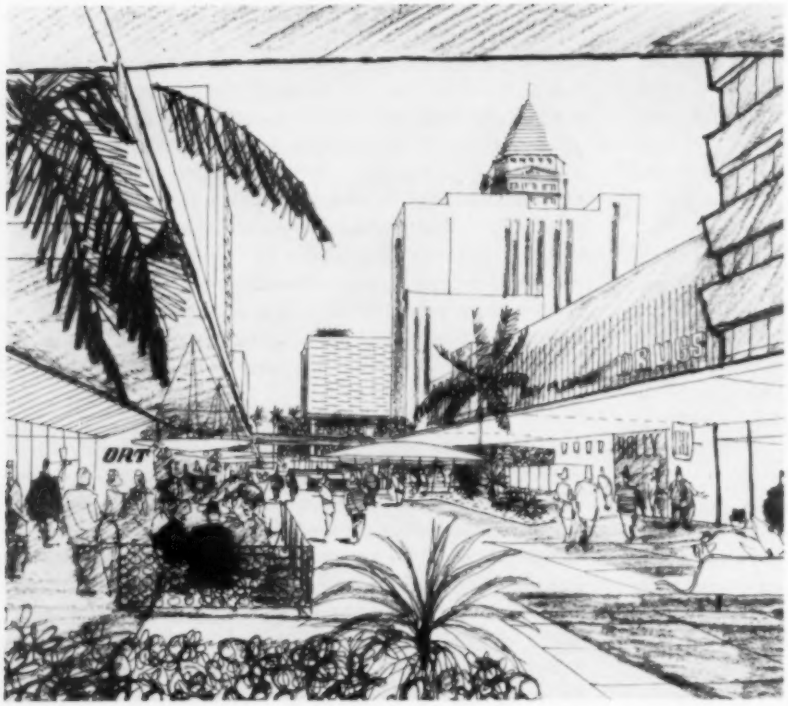
Stuck in this $700-millions jam are some very large and attractive projects. One in New York City, recently approved and now awaiting the appointment of designers, is a $65-millions court house and Federal office building with 1,750,000 square feet of floor space. Other large buildings in the program are in San Francisco ($45 millions), Los Angeles ($38 millions), New Orleans, Atlanta, and Washington, D.C. Most of these are general office buildings, with, here and there, some special purpose areas. The nature of the lease-purchase program, however, precludes its use for any building type not readily convertible to private commercial use.

The design aspects of the program have been handled in a highly satisfactory fashion. At the conception of the program, fears were voiced that architectural and engineering services would be lumped together with financing and construction on a total lowest-bid basis. This danger was averted by a procedure under which plans and specifications were independently prepared by architects selected by the Public Buildings Service. Working from submissions from hundreds of firms, and within objective selection criteria, a good choice of firms has been made. Emphasis on speed—a bit ironic in the light of the total performance of this program!—has led to many jobs being given to associated firms, and to architect-engineer associations, on the theory that this increases their ability to turn out the job faster. For the same reason, larger firms in any given locality have often been selected. While it is still too early to judge the program on the basis of the buildings it produces, none of it is likely to be considered the best work of the architects involved.

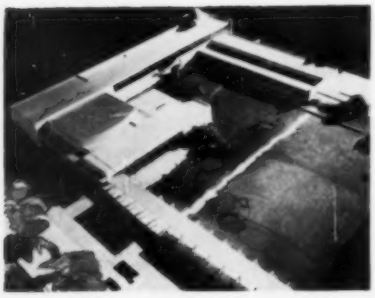
The entire lease-purchase program has still to justify itself in my mind. It is a creature of desperation—of the inability of successive administrations to convince Congress that executive building needs were real, urgent, and enduring, and of the conflict between the need for capital outlay as against balancing an annual budget. The admittedly higher total costs to the government by lease-purchase as against public ownership have been argued as the price of any construction program at all, and accepted by many as a necessary expedient. But now that administrative delays of this magnitude must be added to these increased costs, a conscientious administration ought to take a fresh look at the over-all desirability of the program before tinkering with it.

The effort to resume Federal construction has brought to light a number of new aspects of such construction. The coordinated Federal building program for Washington and its vicinity, which promises to rid the city of its temporary government office buildings, could never have been undertaken without the stimulus of the lease-purchase program. Several firm steps toward the development of major administrative subcenters (in San Francisco, Denver, New Orleans, Atlanta, for example) have been taken. In such cities, master plans for Federal office building centers have been sketched. The choice of sites, the provision of off-street parking, the desire to conform to local city plans, the impact of dispersal and other security factors—these are all typical of the building design climate of 1957. Facing them has also caused some delay, as in Richmond where a struggle between central city and outlying sites has developed. Here, as in Pittsburgh, San Francisco, and other cities where new Federal buildings are being fitted into existing conditions, two kinds of conflict have appeared. One is between rival local groups with a different idea of the kind of city they want. The other is between pinch-penny Federal thinking, which declares that the cheapest site is always the best, and a more generous view that holds the Federal government has a stake in aiding sound city growth, urban renewal, and other objectives even if it costs a bit more. At this moment, too few of the latter voices are being heard. Indeed, it is hard to believe that the same government administers the Public Buildings Service and the Housing and Home Finance Agency.

FLORIDA ARCHITECTS TANGLE WITH TRAFFIC



MIAMI BEACH, FLA., Nov. 8—Three hundred members of the Florida Association of Architects gathered here today for their 42nd annual Convention. They came specifically to consider the aggravated problems that the Motor Age presents to the profession. Henry S. Churchill sounded the keynote: accenting the astonishing fact that in another 20 years there will be 40 to 50 millions more automobiles whizzing about than there are now, he pleaded with the architects to do all that design and planning can do to retrieve and further "the human environment and conservation of natural resources." The core of the problem, Churchill emphasized, is not the highway leading to the city but "local street capacity," where the mess piles up. Urging the architect's increasing concern with civic design, he underlined the need for many more contemporary solutions to the human need for pedestrian spaces —spaces that keep out the automobile and allow "the bench, the tree, the statue, people." Victor Gruen was on hand to summarize a plan he has developed for downtown Miami, which, among other things, would exclude traffic from a stretch of busy Flagler Street (the cars to be parked on the perimeter) and transform the street (*left*) into a pedestrian plaza, complete with planting, benches, sculptures, sidewalk cafes, and other amenities. *Photo: Gordon Sommers*



Three New Campus Units Announced

Major new buildings for leading colleges and universities have made recent headlines. At St. John's College, in Annapolis, Maryland, ground has been broken for the new Francis Scott Key Auditorium and science laboratories (*above left*). In addition to physics, chemistry, and biology labs, the buildings will contain rooms for music and the fine arts. Architects: Richard J. Neutra & Robert E. Alexander, Los Angeles.

New York University has announced plans, developed by Skidmore, Owings & Merrill, Architects-Engineers, for a 10-story, air-conditioned classroom building (*left*) for the Graduate School of Business Administration. All classroom floors (second to sixth) as well as the seventh-floor library will be windowless. The lobby floor will consist of a lounge, executive dining room, and 500-seat auditorium.

Now under construction on the main campus of the University of Michigan is a new undergraduate library building (*above*)—a four-story and basement structure, completely air conditioned. The building, designed by Albert Kahn Associated Architects & Engineers, Detroit, will contain approximately 136,000 sq ft of floor space. Completion of the $2,400,000 structure is scheduled for late 1957.

STEEL AND PLYWOOD JOINED IN EXPERIMENTAL HOUSE

Ernest Braun

SAN MATEO, CALIF., Nov. 15—The latest of Builder Eichler's model homes—the X-100—was recently opened here to the public. Not intended as a production model, it represents rather, according to the builder, "our effort to find new materials, new products, and new methods which might be used in the future in either production or custom houses." Design focus is on outdoor living, maximum spaciousness, and flexibility in the interior arrangement. The structural frame is of light steel, permitting the use of nonloadbearing walls or glass panels. Important new building material used in this experimental house is a high-density-resin overlaid fir-plywood panel (*above left*) originally developed by the Douglas Fir Plywood Association for industrial application. Jones & Emmons & Associates, Architects; William R. Mason, Structural Design; Douglas Baylis, Landscape Architect; Anne K. Knorr Interiors.

Hedrich-Blessing

Campus Plan Developed for Industrial Corporation

SKOKIE, ILL., Nov. 5—Announced here recently were plans for a new office headquarters for International Minerals & Chemical Corporation, to be built on the 21-acre, wooded site where the Corporation's Central Research Laboratory already exists. Designed by Perkins & Will, Chicago architects, in collaboration with International's Engineering Division, the group will include a five-story building for administrative offices; a three-story unit for staff and operating divisions; a one-story staff cafeteria building, joined to the administrative block by an employe lounge-auditorium; and a one-story unit for electronic business-data machines. Structure is to have reinforced-concrete frame, with curtain walls of glare-reducing, heat-absorbing glass and porcelain-enamel panels set in aluminum mullions. The buildings will be fully air conditioned, employing radiant ceiling heat. Total floor area of the new units, scheduled for construction in 1957-58, will approximate 120,000 sq ft. Contemplated cost, to be financed by a sale-leaseback, is about $3.5 millions.

Financial News

by William Hurd Hillyer

The rate of accumulation in residential capital will not continue its downward trend. Such is the provisional conclusion reached as a result of joint study by the National Bureau for Economic Research and the Institute for Urban Land Use of Columbia University. The splitting up of existing dwelling units, which in the past two decades has created additional facilities without involving new construction, will tend to diminish in importance, the experts predict. High population mobility as a result of economic changes, a higher rate of demolitions and an increasing social "fragmentation," forming new households, will call for a substantial volume of buiding. As income mounts, more families will want a summer or week-end home. In the immediate future, however, the researchers see new products and services as likely to outbid housing in the scale of consumer preference.

Meanwhile, in the opinion of New York's First National City Bank, no real evidence implies that a "let-down" is imminent in the prevailing prosperity. "Peak rates" of business activity are anticipated "for the next few months," and the nation's total output of goods and services will doubtless surpass the record annual rate of $413 billions reached in the third quarter of this year. On the other hand, business profits are declining. Manufacturers made 12% less during that quarter than in 1955, judging by reports of over 500 leading corporations. This will tend to curtail new construction, industrialwise.

• Tight money continues, not because the Federal Reserve System has so decreed, as is commonly supposed, but for the simple reason that lendable funds are in short supply, and the Federal refuses to risk inflation by printing additional billions. Spending is outpacing savings. Lending runs far ahead of depositing. During 1956 bank loans have increased $11.5 billions, a 12% rise, while total deposits have shown the comparatively trifling gain of only $461 millions, or two-tenths of one percent. This fact alone may have much to do with the impressive antics of Fanny May (Federal National Mortgage Association) who has accelerated her mortgage buying to a $500 millions annual rate in an effort to relieve the short supply of building money. She is collecting so much interest that wiseacres predict her emancipation from Government sponsorship. There's another and less depressing side to the loan vs. deposit picture. Individuals saved $7 billions during the first half of 1956, a very high rate, reflecting personal income after taxes and a tapering off of debts. This sum did not remain liquid but, by reason of providing business activity and expansion was drained off as fast as it accumulated. While P/A goes to press there are signs of less frantic borrowing: the Federal Reserve Board announces that third quarter bank loans rose only half as much as in 1955—$1.5 billion as compared with $3.1 billions. Nevertheless, they are $9.1 billions ahead of October a year ago. A contrary trend is displayed by consumer credit, which is climbing for the $31 billions mark as this page sees print.

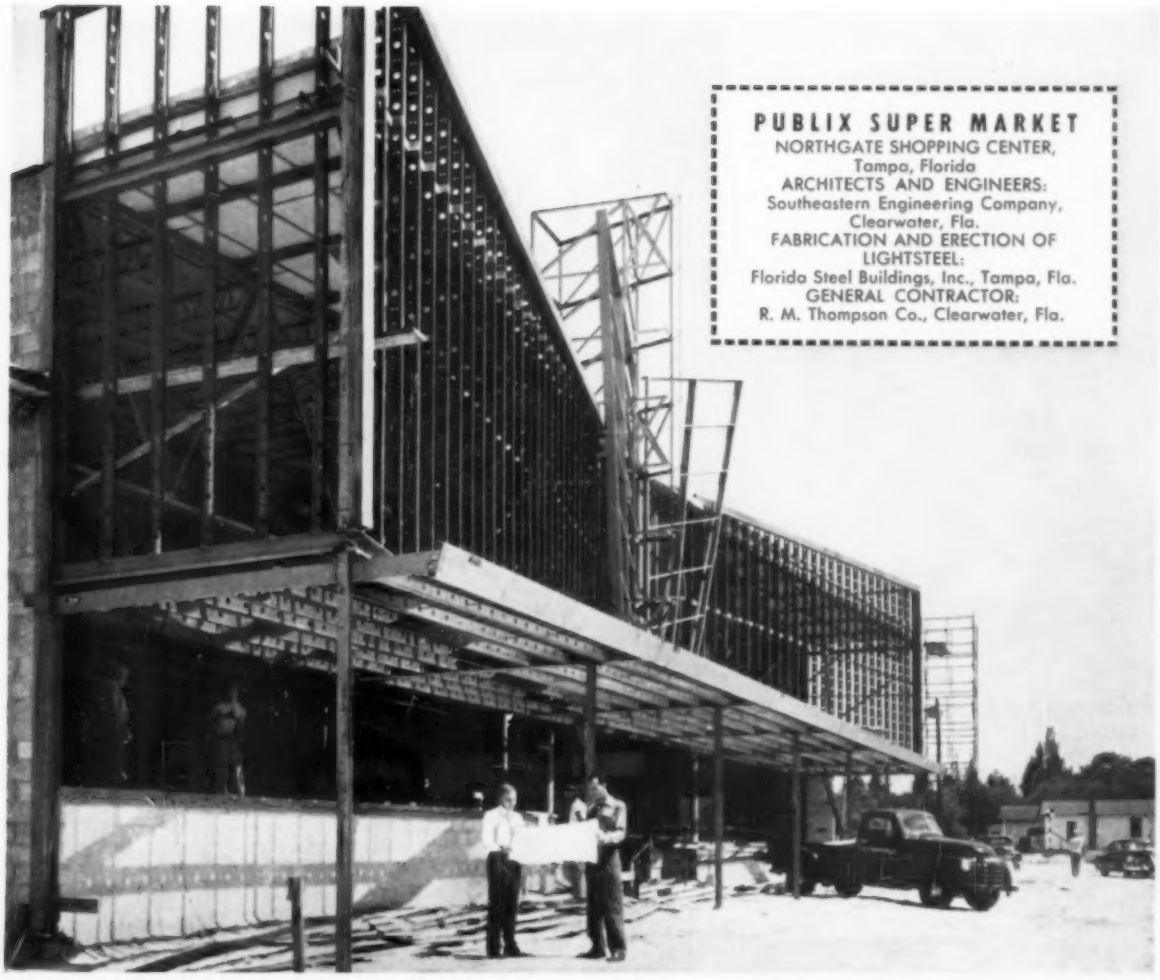
• Architecture and the financial world have reached common ground in the realm of creative discovery. Industrial research, as chronicled by The Wall Street Journal has taken for its province the workings of "creation" in the mind of artist, chemist, or others engaged in purely professional callings. A committee has been formed, of which a leading carpetmaker and financier is chairman. Already the task in hand has been likened to "trying to hit a ball with a spear."

• Revival of wood as a building material will be hailed with satisfaction by architects who have clung to a preference for natural structural substance. The great old wooden beam is making a spectacular comeback via lamination, Wall Street tells us. Churches and schools are chief users, with modern versions of timber construction finding favor for such edifices at a time when they are springing up as never before, particularly in the West. Rising costs of steel and cement are factors in the swing away from those materials, which is likely in turn to have a marked influence on present-day design. Concurrently, an increasing demand for brick and stone veneer is reported among homebuilders.

• Now is the time to expand home improvement, a high government official tells readers of current Bankers Monthly. Most economists agree, he declares, that this market should expand to around $24 billions a year "if we are to keep our housing in good shape." As this page has previously pointed out when discussing smaller home improvement figures, architects will swell their practice by hundreds of millions if only a fraction of the total is professionaly handled.

• With the apparent easing of political and national tensions, the year goes out somewhat as it came in—a product of contrary forces and a victim of opposing views—but with the plus-bright side more nearly dominant. "The rosy capital spending outlook" colors traditionally sober opinion at the Federal Reserve Bank of Chicago, which foresees an annual rate of $38 billions in the fourth quarter (with proportionately good effect on architects' practice). Contrariwise, that institution's ever-available corps of pessimists are tracing the current rise in the nation's output of goods and services "almost entirely to higher prices."

Another minus sign is supplied by the downdrift in bank check totals; which declined 7% the first week in November as compared with the previous week. This fact may have its favorable aspect, indicative of a mild deflationary trend. There is need for restraint opines The Chase-Manhattan Bank, New York, at a time when business activity is again approaching the limits set by manpower, materials and plant capacity. Federal Reserve's restraint policy is seen as helping to maintain high standards: "Our economy" is "coming ahead rapidly," but excesses must be avoided.



PUBLIX SUPER MARKET
NORTHGATE SHOPPING CENTER,
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ARCHITECTS AND ENGINEERS:
Southeastern Engineering Company,
Clearwater, Fla.
FABRICATION AND ERECTION OF
LIGHTSTEEL:
Florida Steel Buildings, Inc., Tampa, Fla.
GENERAL CONTRACTOR:
R. M. Thompson Co., Clearwater, Fla.

Architect finds important benefits in LIGHTSTEEL for new super market

"The LIGHTSTEEL was used because of the resultant light facade which afforded considerable savings in structural steel. The joists were extremely adaptable for use in the marquee structure. The speed of erection, the ease with which the roof form boards and metal lath were fastened all resulted in a very satisfactory installation." That's how James E. Casale, A.I.A., chief architect for Southeastern Engineering Company, summed up his reasons for specifying LIGHTSTEEL for the new Publix Market in Tampa, Florida.

The front of the building was formed with LIGHTSTEEL double studs used in conjunction with heavy steel beams. Metal lath was nailed to the studs and stucco applied over the lath. LIGHTSTEEL joists were used as

purlins in the marquee. This combination provided the relatively stiff fire-resistant section required to meet the Florida building code.

LIGHTSTEEL helped cut construction costs, first, by reducing the steel tonnage required and, second, by cutting labor costs. LIGHTSTEEL is low in cost, and can be speedily placed with minimum manpower and handling equipment. The LIGHTSTEEL nailing groove — a feature of all double studs and joists — saved time in fastening metal lath to joists and studs.

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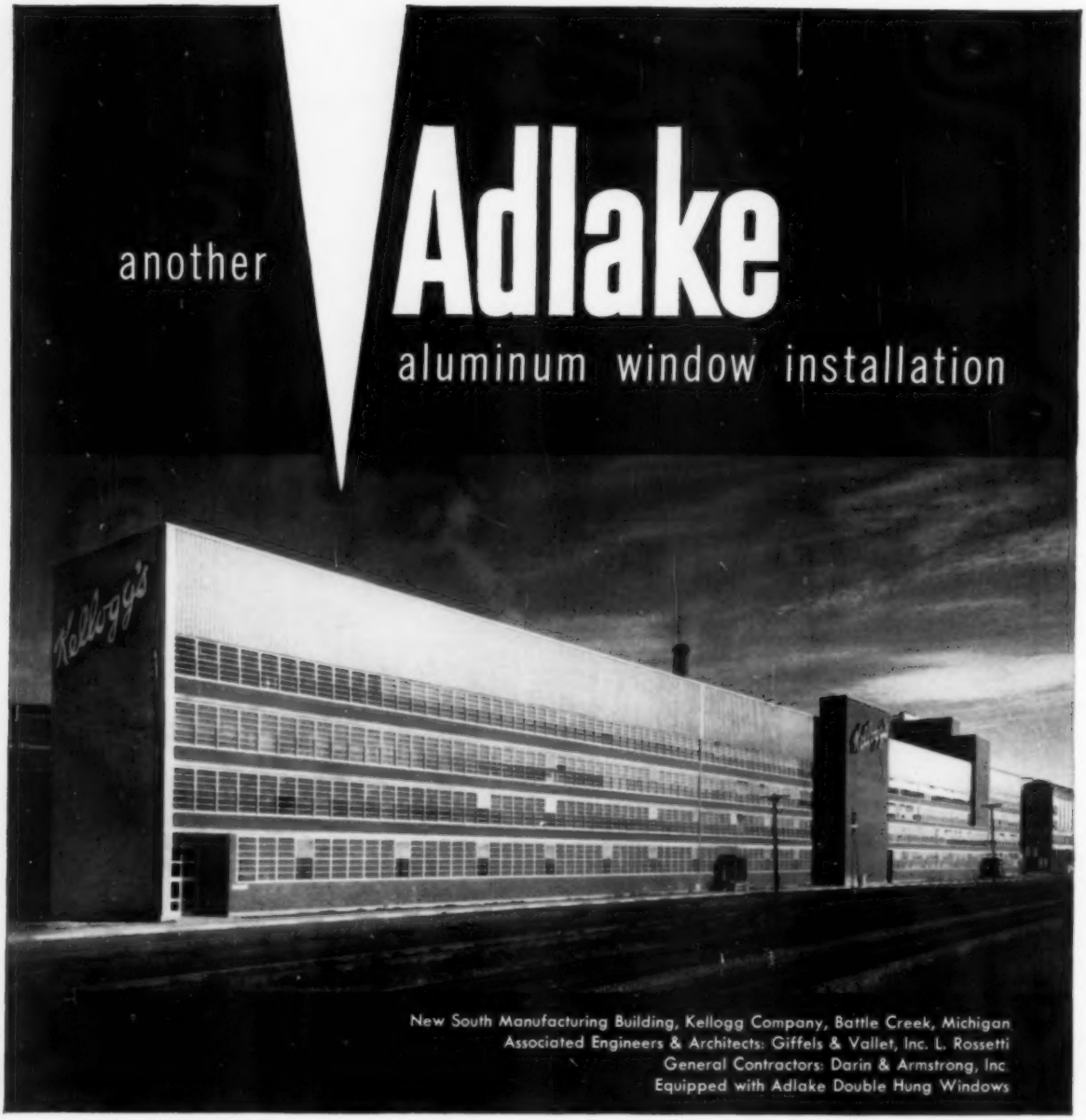

New South Manufacturing Building, Kellogg Company, Battle Creek, Michigan
Associated Engineers & Architects: Giffels & Vallet, Inc. L. Rossetti
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preview for january

PROGRESSIVE ARCHITECTURE

The January 1957 P/A will be devoted in its entirety to the Winners of the

FOURTH ANNUAL P/A DESIGN AWARDS PROGRAM

These Winners, selected by a distinguished professional Jury consisting of Architects Marcel Breuer, Gordon Bunshaft, Harry Weese and Huson Jackson, and Engineer Emil Praeger, represent much of the *best* in architectural design for 1957. No one interested in the future of architecture will want to miss this issue on the now-famous P/A Design Awards Program.

The winning designs represent projects in many building types, including

EDUCATION: Elementary Schools
High Schools
Colleges & Universities

HEALTH

COMMERCE

PUBLIC USE

INTERIORS

RELIGION

INDUSTRY

RECREATION

URBAN PLANNING

HOUSING: Residences
Apartments

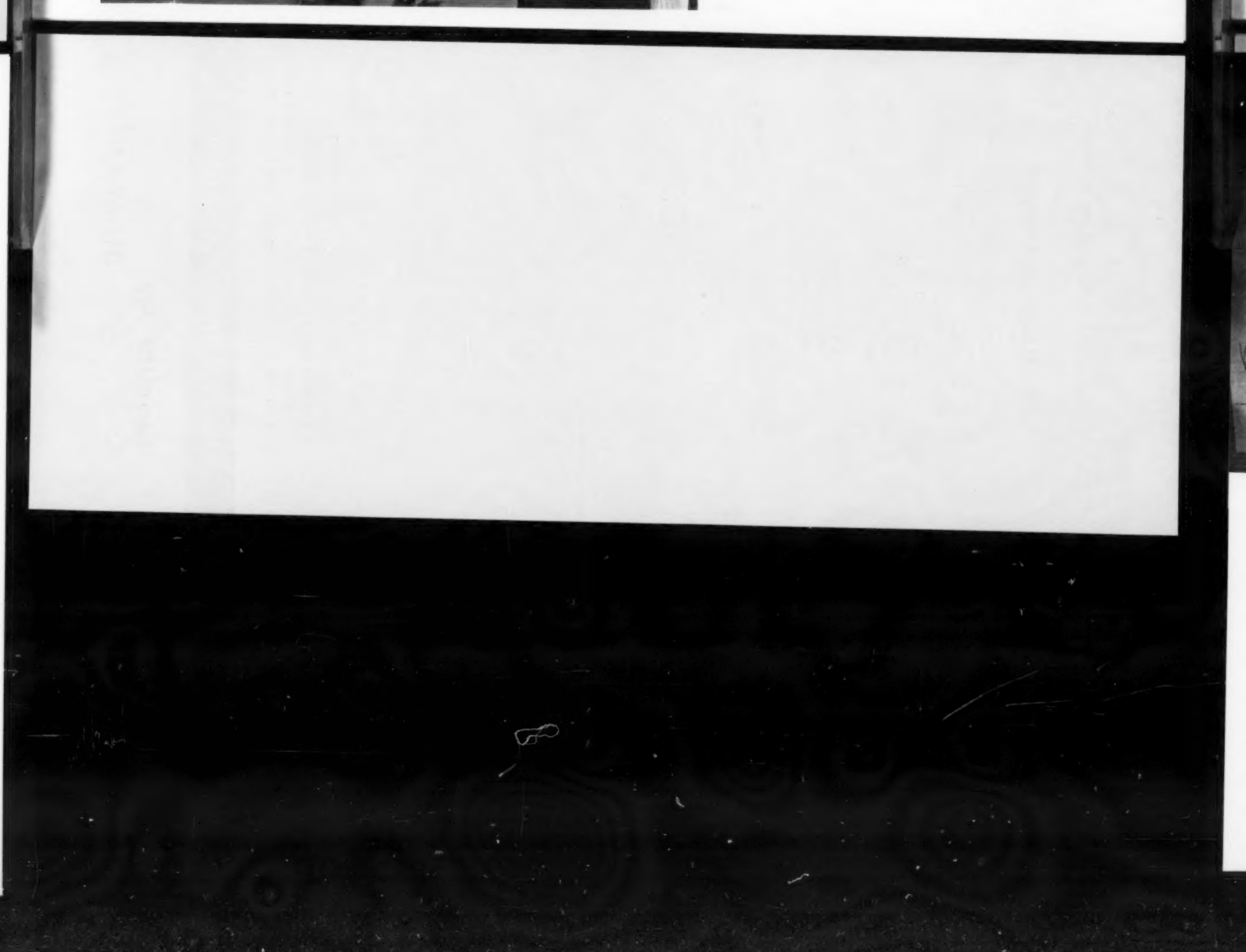
A special feature of January P/A will be the annual PROGRESSIVE ARCHITECTURE *Architectural Business Forecast.* The Forecast for 1957 represents the most complete research of this type ever done in the field of architecturally designed construction. Responses from architects throughout the country this year have far outnumbered those of the preceding P/A Forecasts.

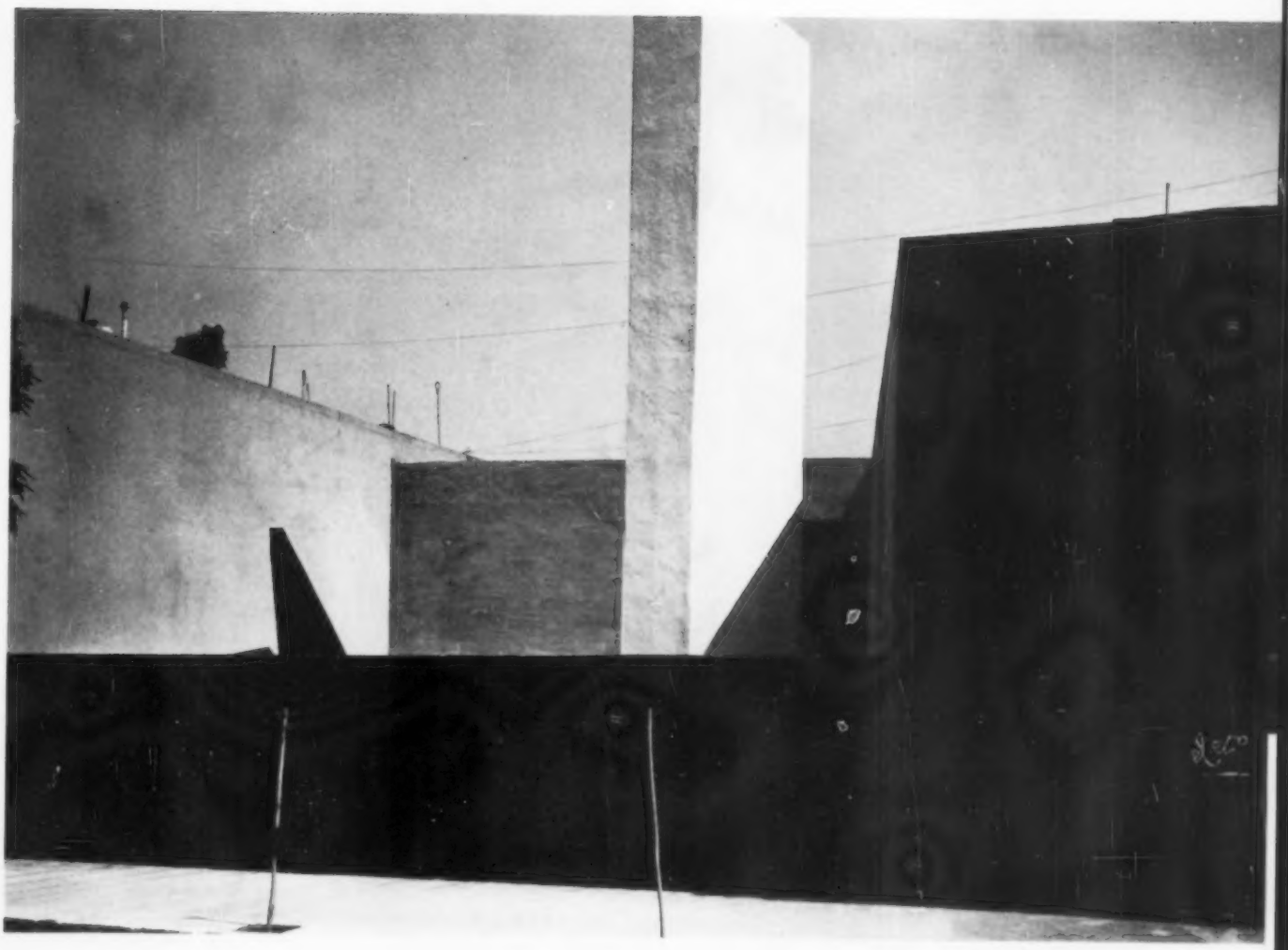
The annual P/A Design Awards Program is only one of the reasons PROGRESSIVE ARCHITECTURE is the outstanding magazine in the architectural field. Enthusiasm for the Program is high in the profession. Walter Gropius has said, "I am convinced that the initiative taken by PROGRESSIVE ARCHITECTURE in establishing these yearly Awards essentially contributes to a clarification of aims and to a more articulate definition of the new values of contemporary architecture and planning."

PROGRESSIVE ARCHITECTURE

means

ARCHITECTURAL PROGRESS

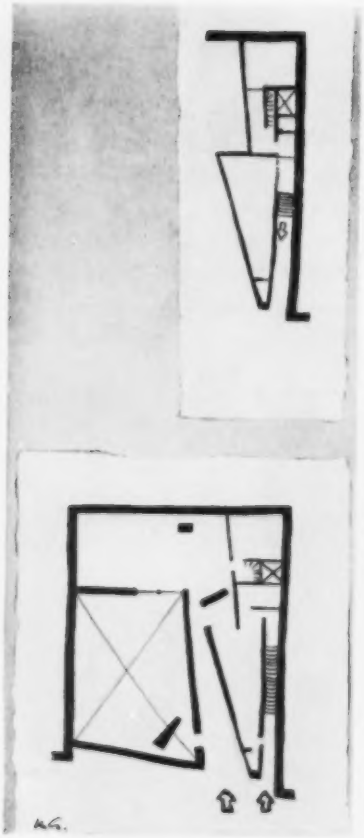




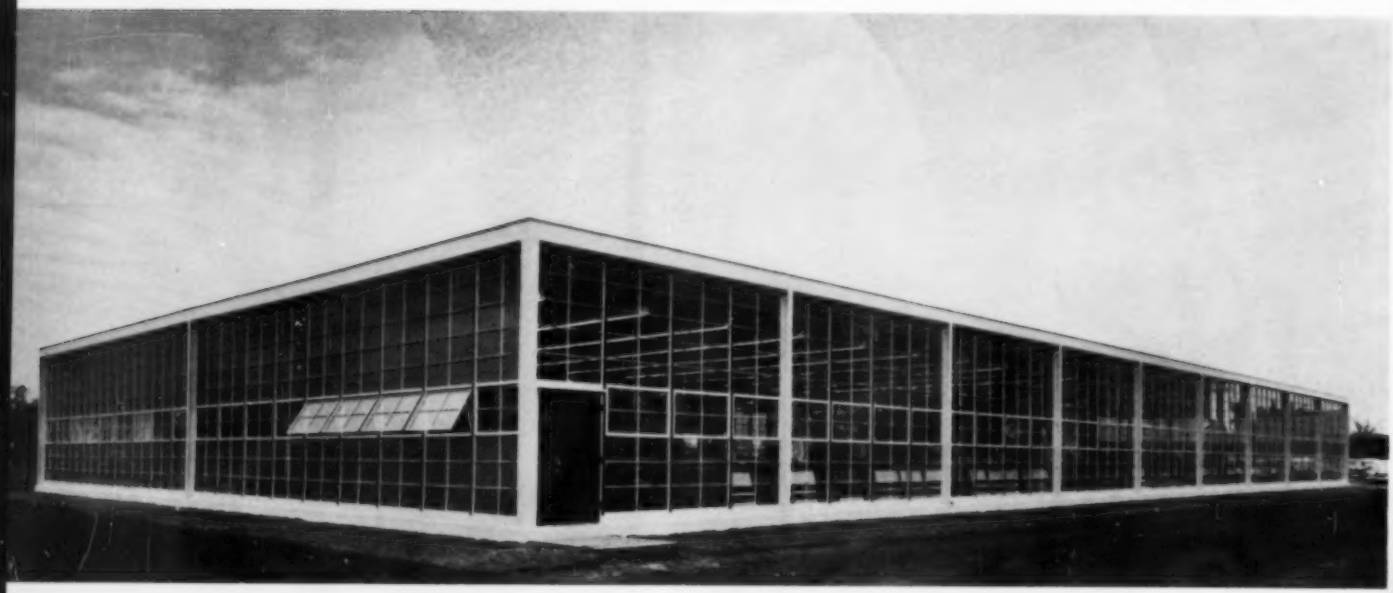
experimental museum

location | Mexico City
designer | Mathias Goeritz

experimental museum

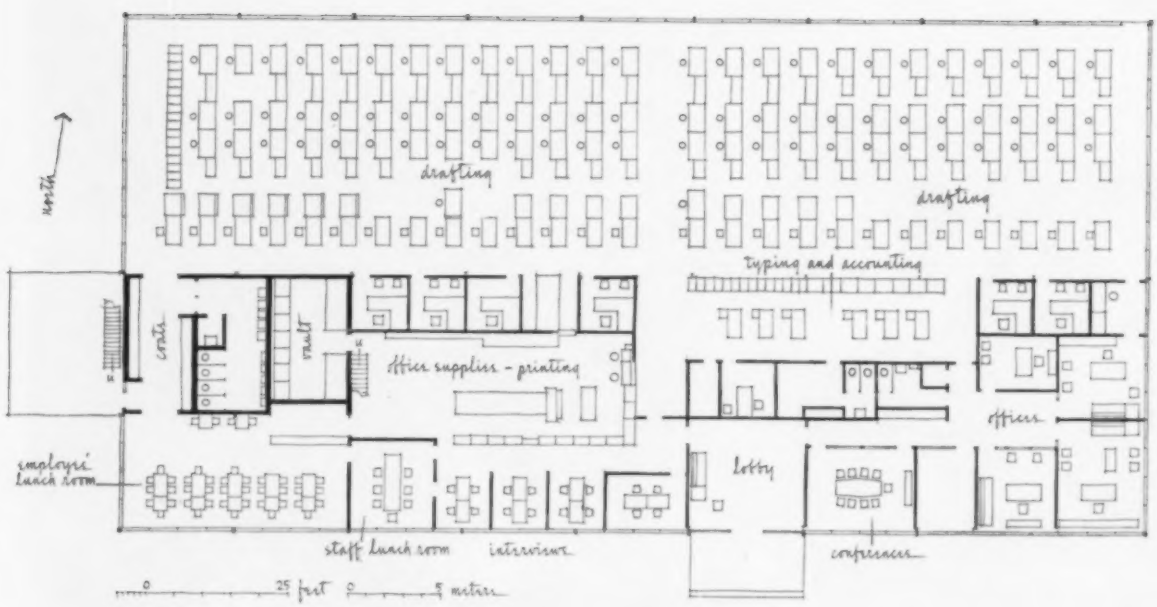


Most buildings are constructed to answer utilitarian needs—only rarely does a client specify that the designer's first objective be the creation of a structure which must evoke emotional responses. Contemporary architecture, with its emphasis on function, has found little time for such *pro arte* examples. However, very recently a new consciousness of emotional values in architecture has been awakened with the completion of Le Corbusier's Ronchamp chapel. This *experimental museum*, an equally plastic building, was completed in 1953 in Mexico by Sculptor Mathias Goeritz as an example of what he called *the new emotional architecture*. "Twentieth Century man," writes Goeritz, "is overwhelmed by the functionalism and logic in modern architecture. But Modern Man asks something more. He wants from architecture a spiritual elevation such as the pyramids, the Greek temples, the Romanesque and Gothic cathedrals, and even the Baroque palaces gave him in their time. Believing that our time is capable of spiritual experience I wanted to express some of it in this building." Erected like a giant piece of sculpture, the design was executed without the use of exact plans and its designer studiously avoided 90-degree angles, symmetry, and any curves. Main access to the building is through a tunnel-like corridor in which floor and ceiling converge to almost a point—its forced perspective further emphasized by tapered floor boards. Two enlarged Henry Moore drawings form the focal point at the end wall of the large salon. A single, glazed opening in this room points to an adjoining patio. The enclosing walls of this court are high and painted gray, black, and white. Color is introduced by a slender yellow pillar; movement, by a large iron sculpture, which, with its restlessness, is in direct contrast to the cloister-like enclosure. This building today houses one of Mexico's most popular and successful night clubs, having been diverted from the original purpose of its entrepreneur, Daniel Mont, to provide a place for the display of all the arts. Others who assisted with this structure were Architects Luis Barragan, Julio de la Peña, and Ruth Rivera; Engineers Victor Guerrero, Rafael Benitez, and Francisco Hernandez Macedo.



architects' office building

location	Don Mills, Toronto, Ontario
architects-engineers	John B. Parkin Associates
partner-in-charge of design	John C. Parkin



After trying to use downtown offices located in two separate buildings and being unable to find available space where 15,000 sq ft of office space could be organized on a single level—considered a program essential—the firm obtained a four-acre site in the suburban community of Don Mills (*see August, 1956*) and designed its own building to accommodate a staff of about 100 persons. The essentially one-story structure (only the boiler room, file space, and room for a model shop occur on a mezzanine) has a large (45'x180') north-facing drafting room in which architects, engineers, and designers all work. The partners report that in this unpartitioned work area "mechanical engineers understand more clearly problems presented to designers, and designers, in turn, are increasingly aware of the importance of the limiting disciplines imposed by mechanical engineering. . . . Information moves back and forth among the various specialists quickly." No columns interrupt the area, as the steel-framed building has 45-ft clear spans made possible by use of long-span bar joists. Exterior walls consist of exposed steel frame (painted white); black-painted Junior-I stiffeners on 5-ft centers; and blue-tinted, heat-absorbing, glare-reducing glazing (*see* SELECTED DETAIL). The exterior face of the wide-flange columns is on the same plane as the box channel beam that forms the fascia; the steel sash are welded to the inner flange of the columns. "This," the architects point out, "plus the raising of the building one foot above grade on a concrete stylobate, creates an appearance similar to that of the trabeation of Classic Greece and Rome."

The entire design, including office furniture, is based on a 5-ft module, and continuous-fluorescent troffers are spaced $1\frac{1}{2}$ modules apart. Though provision is made for future air conditioning, the 14-ft ceilings (steel roof deck), a flooded roof, wide aisles, and continuous venting sash have produced comfortable work conditions. Heating derives from a double bank of exposed fin convectors. With the exception of the cafeteria, where there has been some fogging on very cold days, no condensation has occurred.

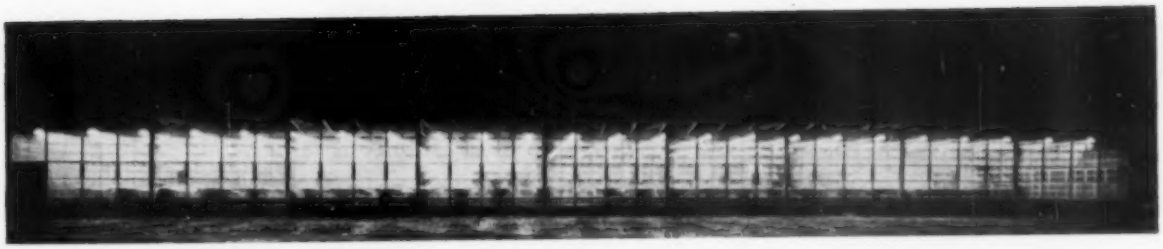
J. E. Mews was Associate in Charge of Mechanical Engineering; General Contractor, Redfern Construction Co., Ltd.

architects' office building

Immediately inside the main entrance (top right) *is a 20-ft-sq lobby-waiting room that is also used for exhibition purposes.*

Partners' offices (top left and above) *are at the southeast corner of building. Furnishings are from Knoll International Canada, Ltd. The Partner-in-Charge of Design has an interconnecting door to a private drafting room and thence, to the design area of the main drafting room.*

Photos: Hugh Robertson-Panda



The main conference room (below), at the front of the building, has a glass wall facing the corridor. A series of four cubicles is provided at the other side of the entrance lobby for meetings with agents, inter-departmental meetings, etc. For maximum flexibility, all glazed offices, partitions, counters, etc., are completely modular and demountable.

gymnasium

location | St. Louis, Missouri
architects | Bernoudy & Mutrux

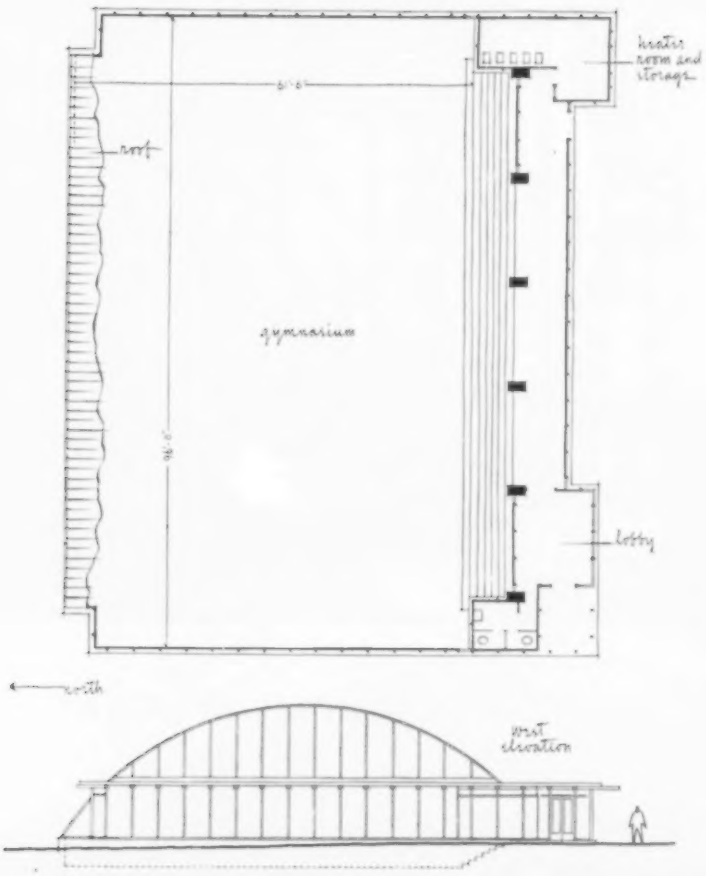
The program for this athletic facility for the Thomas Jefferson School for Boys called for a gymnasium large enough for regulation high-school basketball court and other general gym activities, seating for a maximum of 200 spectators, toilets, etc. Showers and dressing rooms were not required, as these exist in an adjacent dormitory building.

A design wish was to keep the structure low in height and in scale with the domestic character of the other school buildings, at the same time providing a minimum 25-ft height above the center of the court. To accomplish this, a lamella roof structure was selected to span the 70′x86′ area, and the gym floor is sunk 4 ft below entrance level, the excavation slope being utilized to support broad concrete steps that serve as bleachers.

Spaces between the wood framing of side and end walls are filled with cement-asbestos-surfaced, structural, insulating board; the playing-floor surface is asphalt tile.

For skylighting, lozenges are formed within the diamonds of the roof framing, and these are covered with corrugated, glass-fiber panels. A perimeter warm-air heating system, designed by Robert W. Macdonald, Heating Engineer, uses a bank of five, domestic oil-fired furnaces instead of a large custom-made unit, resulting in economy of both installation and servicing. Engineering of the roof, by Lamella Roof Structures, Inc.; Color Consultant: Werner Drewes; General Contractor: Joseph Schiermeier.

Photos: Paul Piaget


heater room and storage
roof
gymnasium
lobby
north
east elevation

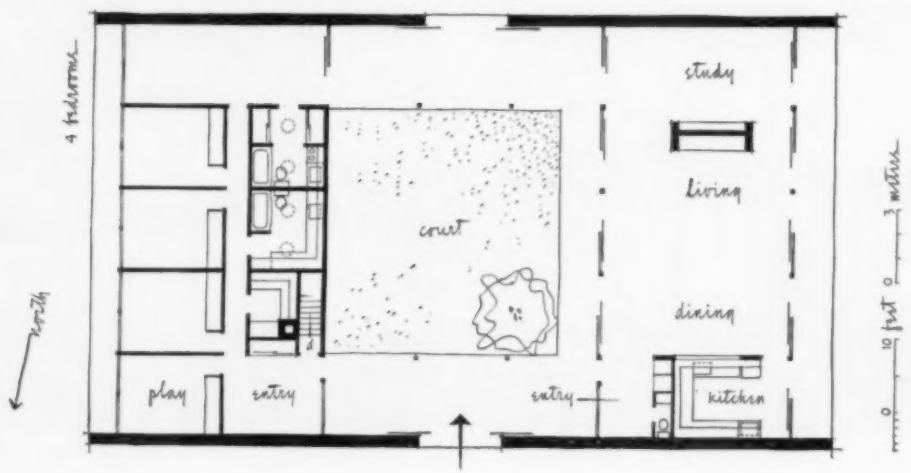
house: New Canaan, Connecticut

Eliot Noyes, Architect

In its design stage, this remarkable house, built by the Architect for his own family, was given an Award in P/A's first Annual Design Awards Program. The Jury* applauded it for "its exceptional simplicity and refinement." The disarming plan consists of two parallel, rectangular elements (one for living, working, and dining; the other, for lazing and sleeping) that are strongly joined by house-height walls of fieldstone. The whole encloses a serene, landscaped courtyard. At the center of both of these massive, masonry walls are sliding doors that open the court to the surrounding woodland site, or enclose the house for complete privacy. East and west exterior walls, as well as the living-wing wall facing the court, are largely of glass. Steel columns and girders, 11 ft o.c., span the enclosures between the stone walls; otherwise, framing is wood.

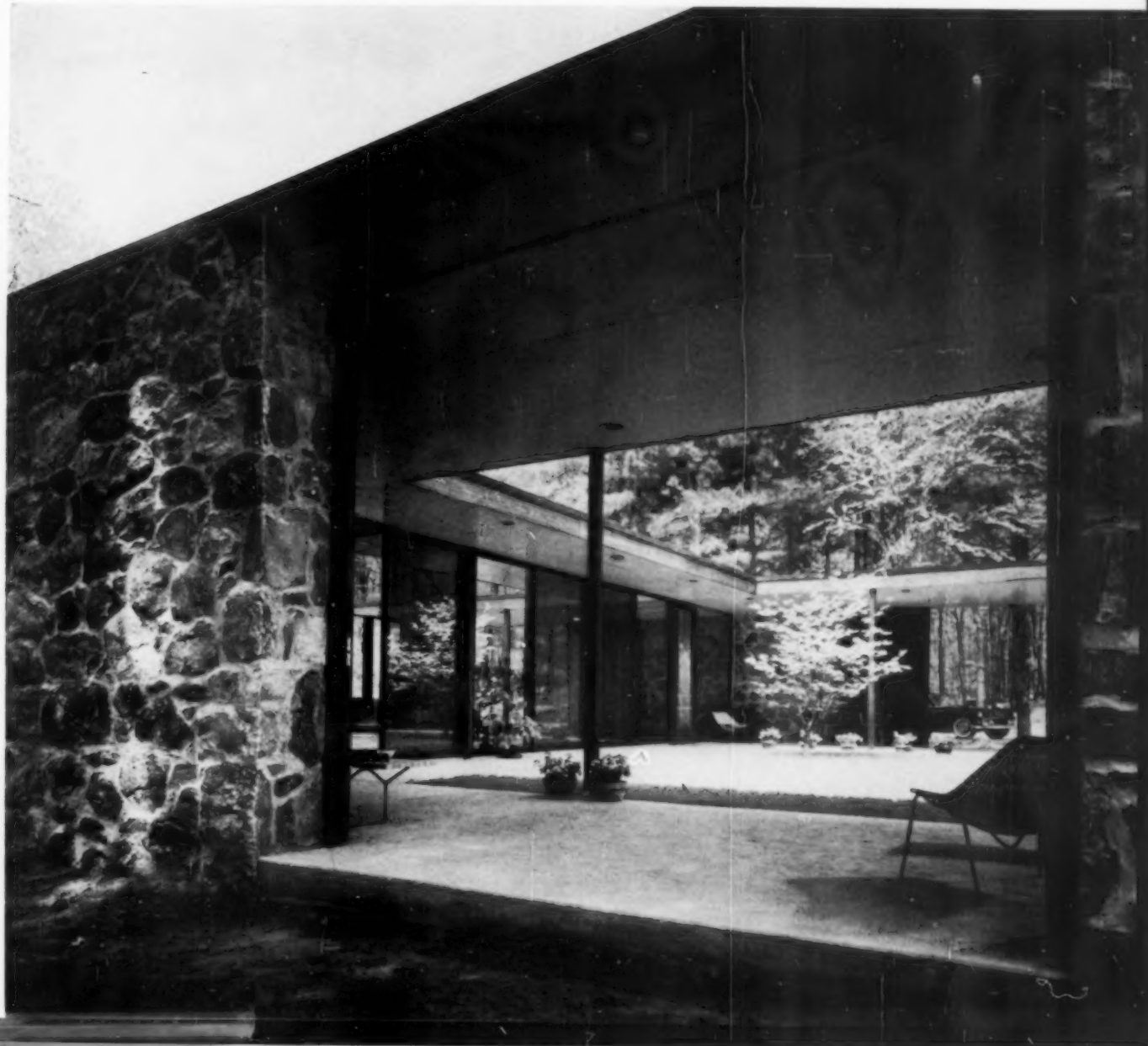
Floors throughout the house are bluestone on a concrete slab, in which are embedded the steel piping for the radiant-heating system. Boiler and controls are in a basement under the bedroom wing. Ceilings are of rigid building board or acoustical tile, and, for thermal insulation, glass-fiber material is used within the structure. Sash are steel, glazed with ¼-in.-plate glass; plastic skylights light secondary areas in the bedroom wing. Doors are flush birch. The exposed wood is stained cypress. Richard Kelly was Lighting Consultant; Borglum & Meek, Inc., General Contractor.

* *Victor Gruen; the late George Howe; Eero Saarinen, and Fred Severud.*



Because of the fieldstone and natural wood used in the construction, the house is almost camouflaged in its woodland setting—as much at home as a bird's nest in a tree. On entering one of the two central doors in the masonry walls, one comes on the well tended garden court, and indoor and outdoor living areas join to create a compelling sense of space and harmony.

Photos: Ezra Stoller

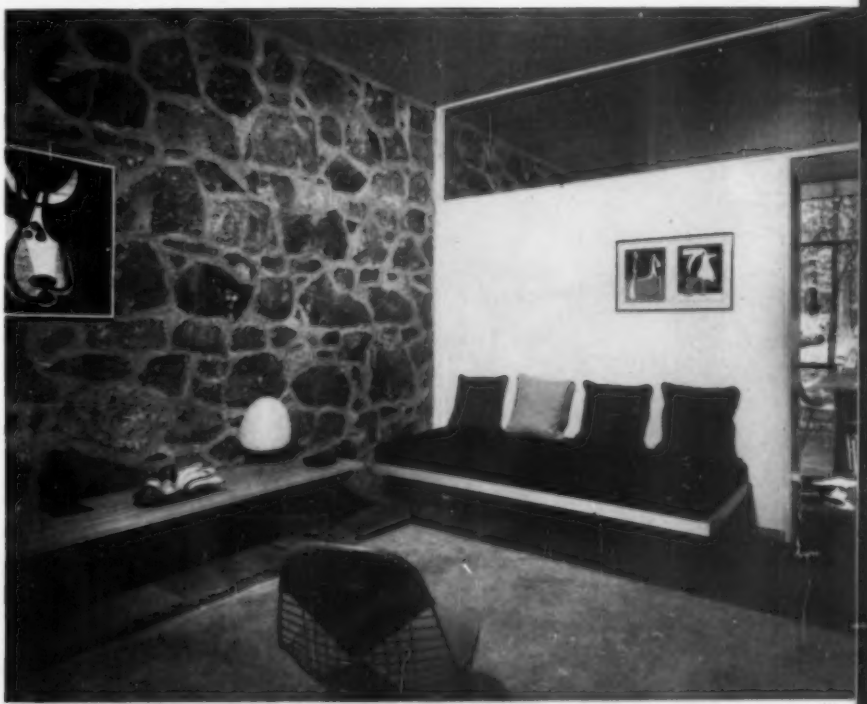


house: New Canaan, Connecticut

Much of the life in the house revolves around the handsome interior courtyard, with the two covered walkways joining the paired enclosures. A question that visitors invariably raise about the plan is that one must go outdoors and along a roofed walk to get from one area of the house to the other. And the Architect-owner is happy to answer the question: "The separation of the two houses—after two winters—proves to have no problems due to weather. On the contrary, the crossing of the court in all seasons is a stimulating transition."

The glazed walls of the bedrooms look east over the wooded site. A small living room in this wing (below right) *and a kitchenet in the master-bedroom bath make possible independent activities in the separate parts of the house.*

An intercommunication system, between kitchen and study (in the west wing) and bedrooms (in the east wing) makes immediate contact possible between the different parts of the house.



house: New Canaan, Connecticut

At the south end of the living wing is the study (top acrosspage), *screened from the polite living space* (above; bottom acrosspage) *by bookshelves recessed into the fireplace masonry. Here all manner of paraphernalia for the interests and hobbies of a family of parents and four children are housed.*

The opposite end of the wing contains the efficiently organized kitchen (right) *with pass-through counter to the dining table.*

house: San Francisco, California

Gordon Drake, Designer

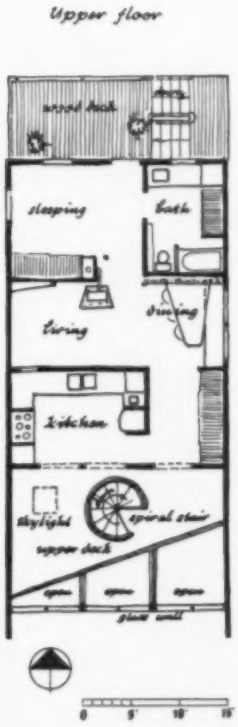
Perched in a confusion of neighboring buildings on one of the precipitous slopes of Telegraph Hill in San Francisco, this little house at the end of an alley was saved from ruin to become the home and office of Landscape Architect Douglas Baylis and his wife. It is, incidentally, the final work of Gordon Drake, the gifted designer who died in 1952, when just 34 years old.

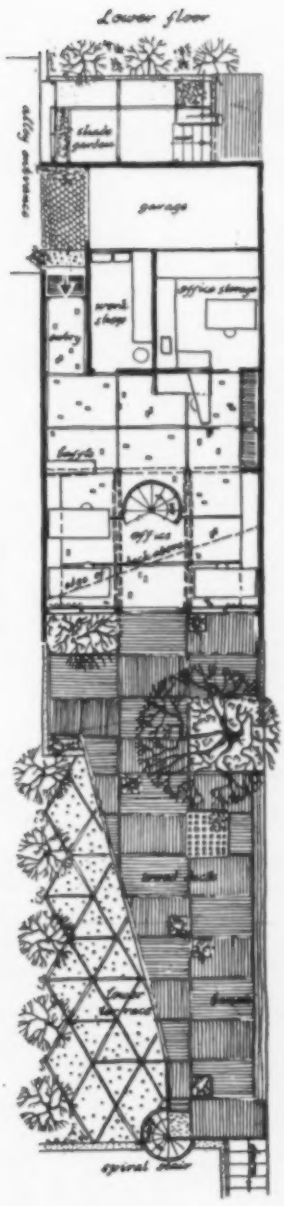
The south wall at the rear, or view side of the house was extended a few feet and redesigned in a modular scheme as a two-story, wood-framed wall of glass; adjoining is a cantilevered living deck that exploits the drama of the site. The exposed structure, both indoors and out, is typical of Drake's design approach, as is the simple detailing—in this case so basic that the work was carried through by the owners and Fred Hilbiber, Mrs. Baylis's father. Most materials were specified with an eye to purchase from local lumber or wrecking yards. Even the original floor furnace was left in place, and a simple space heater was added for the office-studio area.

An important aspect of the design is use of color, especially on the interior. Exposed structural elements are painted dark blue; walls are off-white with occasional "shock treatments" of yellow and red; the spiral stair joining office-studio and living-dining deck above is orange-red with black treads. Wood-block flooring at the ground level is dark gray.

"We achieved the house by endless hours of our own work," Baylis writes, "and by scavenging for what we could find in the local wrecking yards. . . . Living and working in an unique building is very rewarding, since we have the daily pleasure of the sun; the view to the garden; and the excitement of color. The surfaces are easy to keep clean. Maintenance of something beautiful is a joy rather than a job."

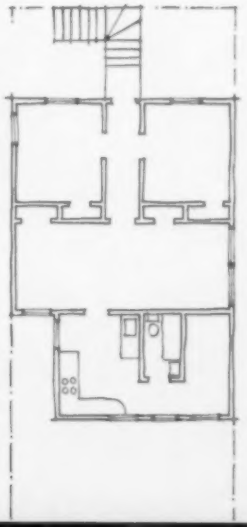
Photos (except as noted): Morley Baer

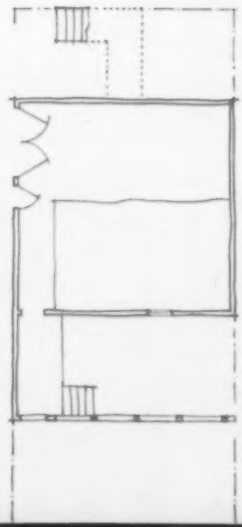




Douglas Baylis

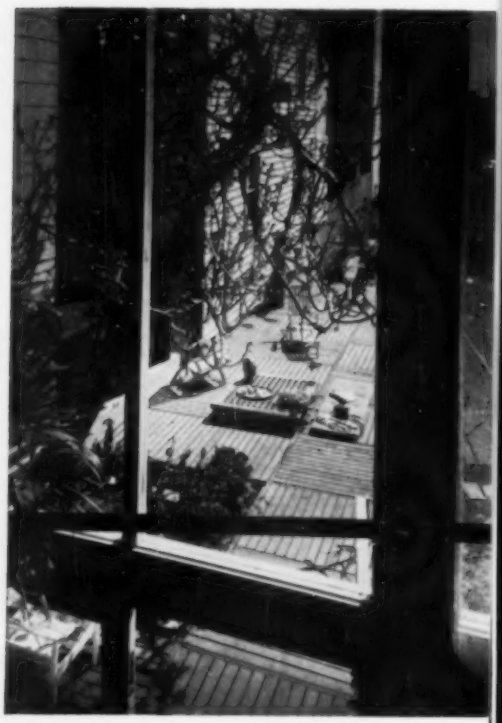
The house that Douglas Baylis bought (left) *was wholly unprepossessing, and its plans* (right) *were cramped, with few, if any amenities.*

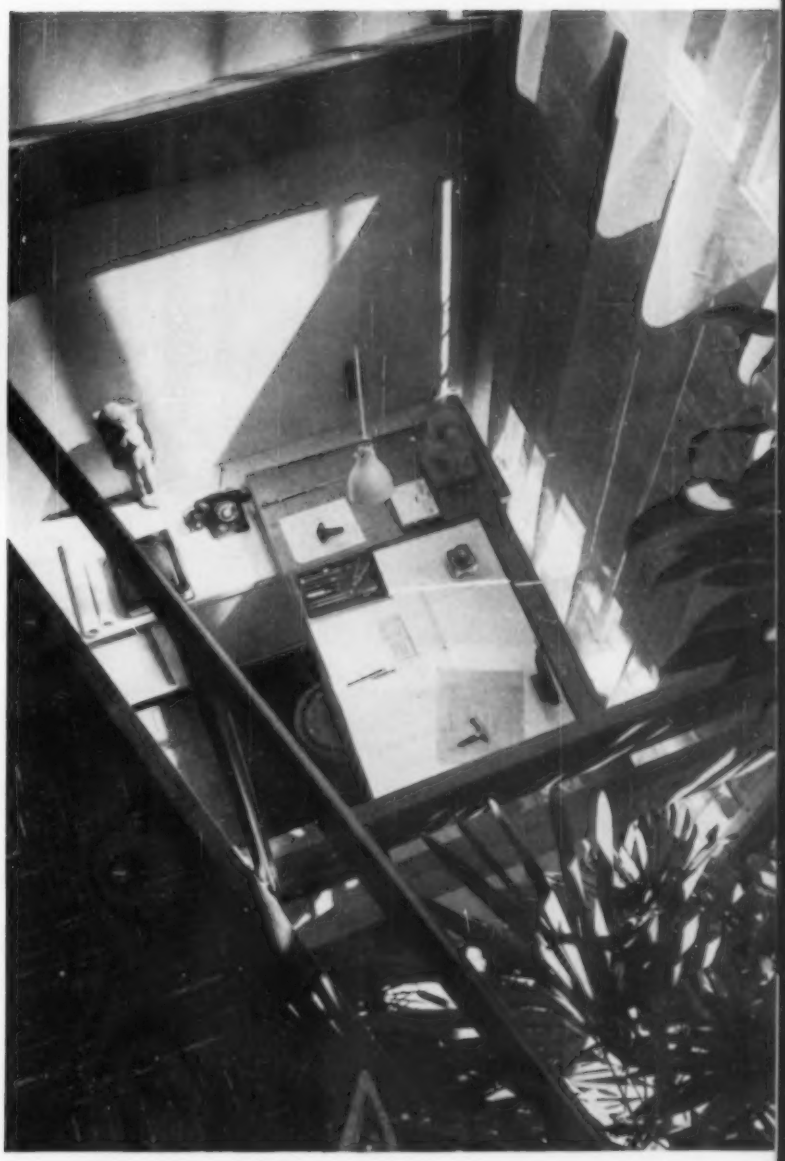




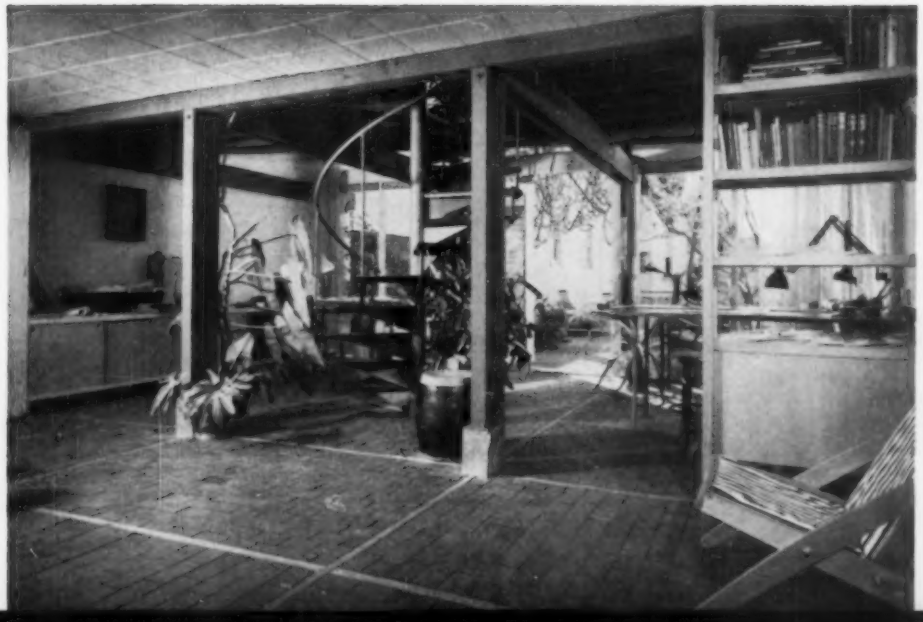
Throughout, vertical elements and lines echo the extreme verticality of the site (left).

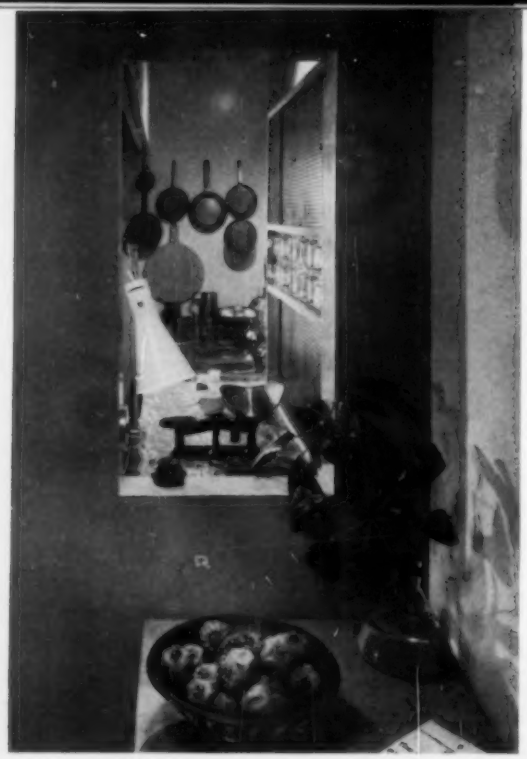
From the upper level (below), *one looks down through the tall windows of the south wall to the cantilevered living deck.*



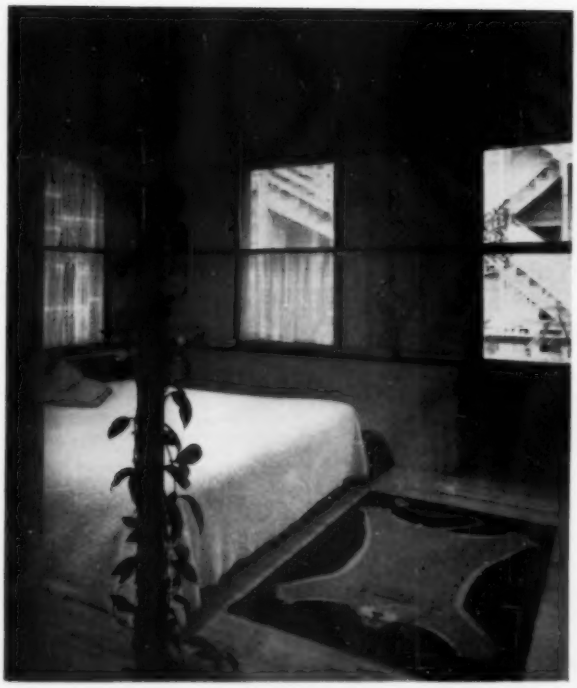


From the ground-floor office/studio space (below), *a colorful spiral stair leads to the upper-level living deck* (above). *From this level, a striking view of the drafting corner* (right) *is gained.*





A rectangular aperture (left) *allows direct service from kitchen to living/dining room* (below).



The sleeping room and bathroom (above) *are off the main living/dining room.*

A splayed shape for the dining table (right) *makes maximum use of limited space. Note bookshelves and storage space overhead.*

For a picture review of a new book about Drake and his few, but brilliant, architectural accomplishments, see following page.

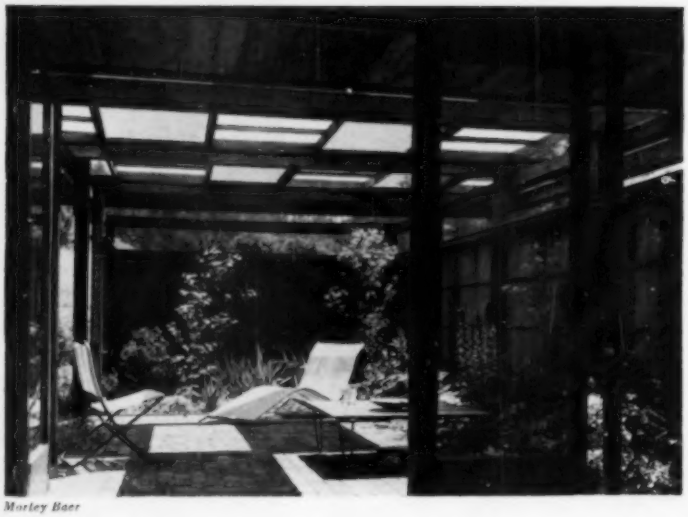
California Houses of Gordon Drake *by Douglas Baylis and Joan Parry*

Campbell Ricco

GORDON DRAKE: 1917-1952

Among the houses detailed in the book are: (left column) *The Unit House, an expandable scheme, and the Presley House, an experiment in panel construction; and* (right column) *Drake's own house, Los Angeles, and the studio he built in Carmel* (bottom).

Photos (except as noted): Julius Shulman



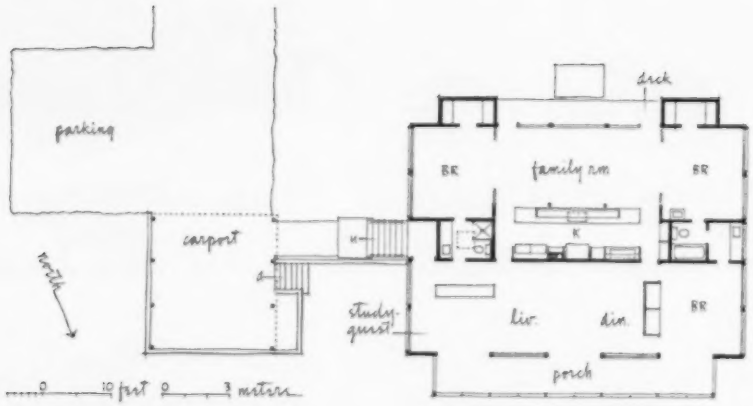
Morley Baer

In 1946, when P/A was conducting its Awards Program for completed buildings, an all but unknown designer, Gordon Drake of Los Angeles, arose to win a First Prize, accorded by an outstanding professional Jury.* Six years later, Drake died at the age of 34. The recent book, *California Houses of Gordon Drake* (*Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y., 1956. 92 pp., illus., $6.50*), makes a permanent record of design excellence as exemplified by his work; tells a remarkable story of his brief but devoted adherence to the cause of architectural progress; and salutes one who, gifted beyond his years, managed to produce bright beauty in a moment of world confusion.

* *William Wilson Wurster; Morris Ketchum; the late Eliel Saarinen; Fred Severud; and Dr. C-E. A. Winslow*

house: Chapel Hill, North Carolina

George Matsumoto, Architect, and Kenneth M. Scott, Associated Architect



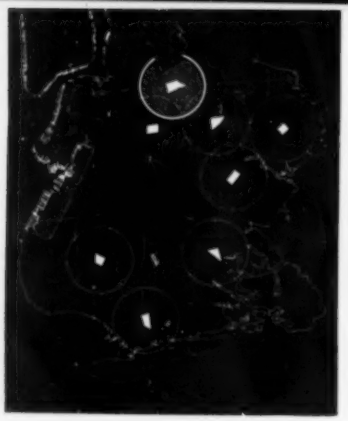
This plan has undergone few changes since its first publication in project form, in P/A's 1953 Awards Program. Prime consideration in the design of this house for parents and four young sons was the economical separation of adult and children's activities, with adequate provision, however, for close supervision of the small children. This separation has been successfully achieved by the device of a skylighted buffer-zone—formed by bathrooms, kitchen, laundry—which divides the house into two almost equal parts. Living/dining/study area and master bedroom are oriented toward the north and the major view; children's rooms face south and are in direct contact with the ground at the high portion of the sloping site. Shop, heater, and storage space are located under the utility core, and the area north of it is slated for future expansion. The house is completely air conditioned—another reason for its tightly knit plan—and heated by forced warm air. Construction is regular post and beam, 8′-0″ on centers, with cantilevers on all sides of the house. Foundation and basement walls of concrete block follow the structural column lines. Upper walls are of wood frame sheathed with cement asbestos panels or T&G vertical wood siding. Frank Walser was General Contractor.

The adult living area (right) *with its own screened porch* (below) *is approximately nine feet above ground level. Space underneath* (acrosspage) *will eventually be enclosed to provide room for expansion.*

Photos: Joseph W. Molitor

Children have their own covered terrace (above) *which links family room with the grounds. Study* (left) *is part of the living/dining area set aside for the adults at the north of the house. Storage wall forms barrier between study and main entry.*

North side of master bedroom opens onto screened porch; the opposite side is insulated from children's quarters by the utility core. Center link of the skylighted utility core are kitchen and laundry (right) *from which family room* (below) *is easily supervised. Family space may be enlarged to incorporate the two children's rooms, making a total length of 48 ft for indoor play.*



Brooklyn Industrial Development*

So integrated is Brooklyn within the metropolis of New York, it is startling to realize that the city is comparable to Chicago in size. Its population of 2,738,000 occupies some 80 square miles. Brooklyn is one of the great maritime and industrial centers of the world, and as a manufacturing center ranks fifth in the country.

For most cities, industry provides the economic underpinning. The traditional economic factors that business considers in choosing plant sites are: proximity to markets, availability of raw materials, labor supply, transportation facilities, and sources of water, fuel, and power. Brooklyn provides these adequately.

Our proposal calls for dealing with light and heavy industry separately, and zoning Brooklyn accordingly.

LIGHT INDUSTRY would include manufacturing for which the floor area per individual is relatively low — approximately 200 sq ft per person. A large labor force would be required to turn out the high-bulk material this area would produce. The garment industry would be the principal occupant of this area. In addition, other "non-nuisance" manufacturing processes such as novelties, printing, textiles, small metal products, leather, paper, plastic products, and electrical appliances would be permitted.

We propose to locate eight Light Industrial areas in Brooklyn. These sites have been chosen after taking into consideration the following factors:

1. Present condition of area—the types and ages of the dwellings, the availability of land.

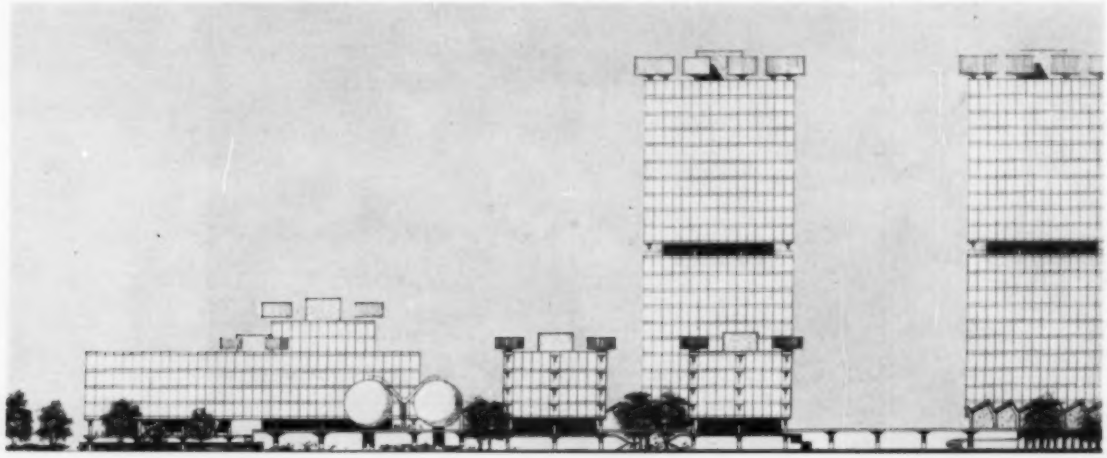
2. Cost of land—a detailed analysis was conducted, and only sites where the cost per sq ft of land was relatively low were considered.

3. Labor force—considering the type of industry to locate in these areas, sites were favored where large concentrations of unskilled labor were available. We went under the assumption that by locating these sites near the lower income families, we would be able to allow a second household member to do full or part-time work, and therefore raise the standard of living in the area.

4. Walk to work—by taking a mile radius around our chosen sites we show the affected area. We feel that within this area people would walk to work, or be provided with adequate surface lines as to facilitate easy access to and from work. This would prevent congestion of transportation facilities, ease rush-hour traffic and provide for maximum labor force.

5. Truck movement—taking into account the heavy movement of supplies and finished goods that would move in by truck, sites were chosen which were on main truck routes, or easily accessible to such routes. The nature of this industry would necessitate truck movement, and therefore rail movement was not a prime factor. Only two of our areas provide present rail movement and these would handle the industries which would require this type of transportation.

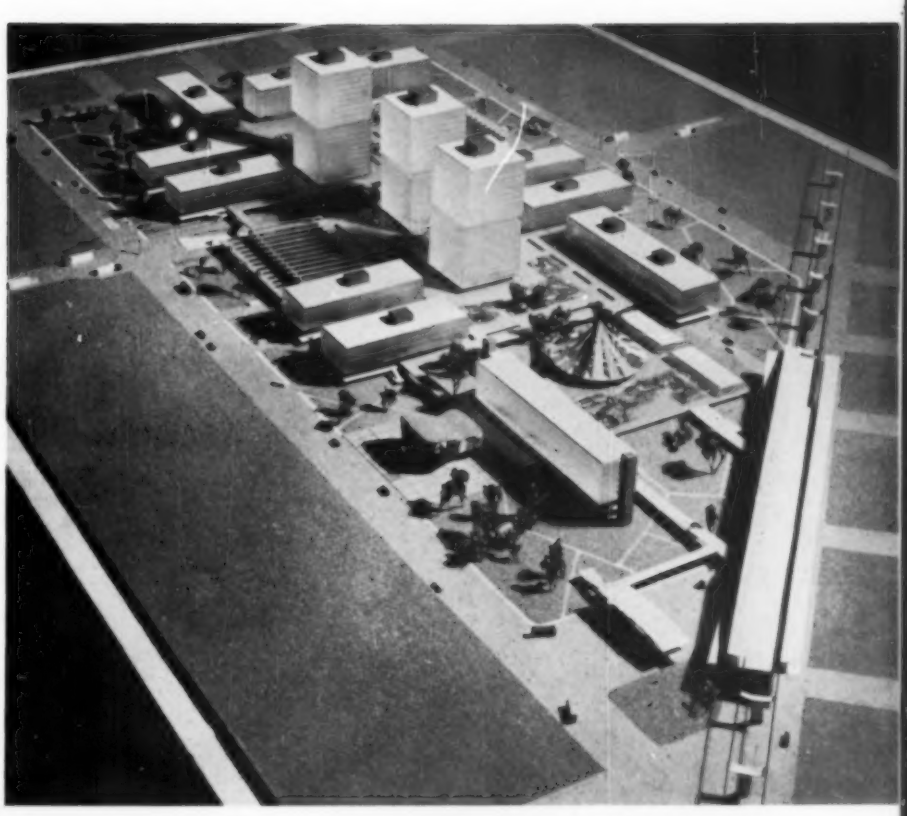
We therefore based our selection of sites according to the above conditions and arrived at sites as shown on diagram above. Our main purpose was to consolidate Light Industry throughout Brook-



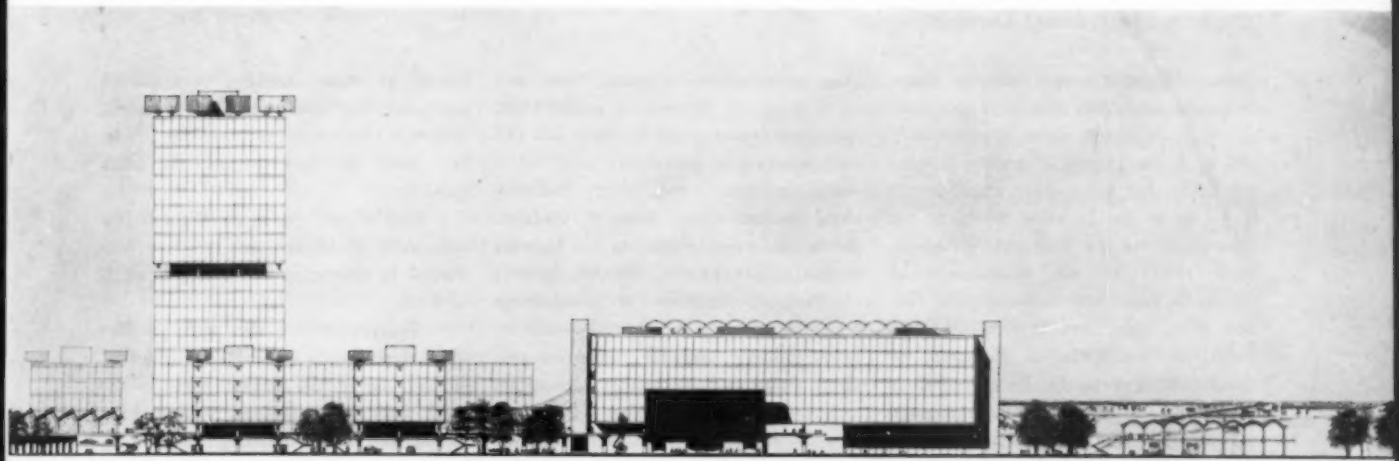
* *Thesis by Stuart Cohen, Stanley Kogan, and Frank Marcellino. This report by three Pratt Institute students acquainted with conditions in Brooklyn may well offer a key to logical redevelopment of that city. To these young planners, the heart of the problem is the widespread industrial slum. Their answer is the planned industrial center, as the future nucleus of the neighborhood unit. Critics: Dean Olindo L. Grossi and Prof. William N. Breger, School of Architecture, Pratt Institute, Brooklyn, N. Y.*

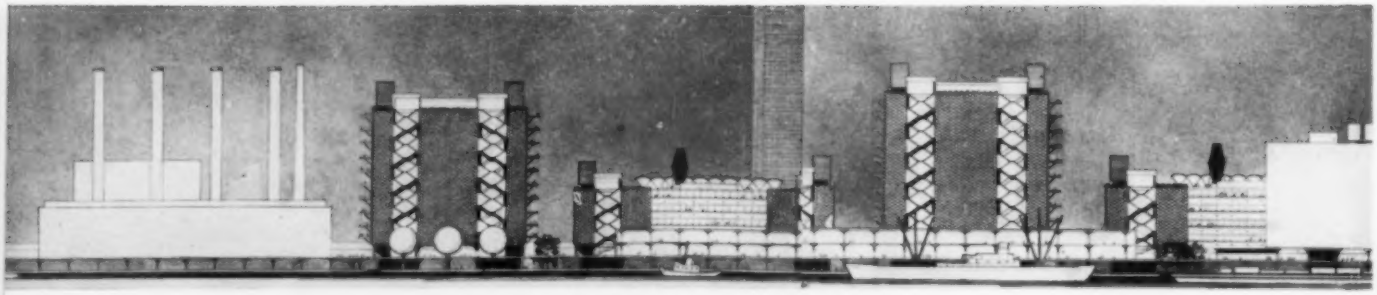
lyn, and place it at locations such as would benefit both employer and employe. We want to do away with the corner store used as a place to manufacture dresses, and the encroachment of other manufacturing into residential areas.

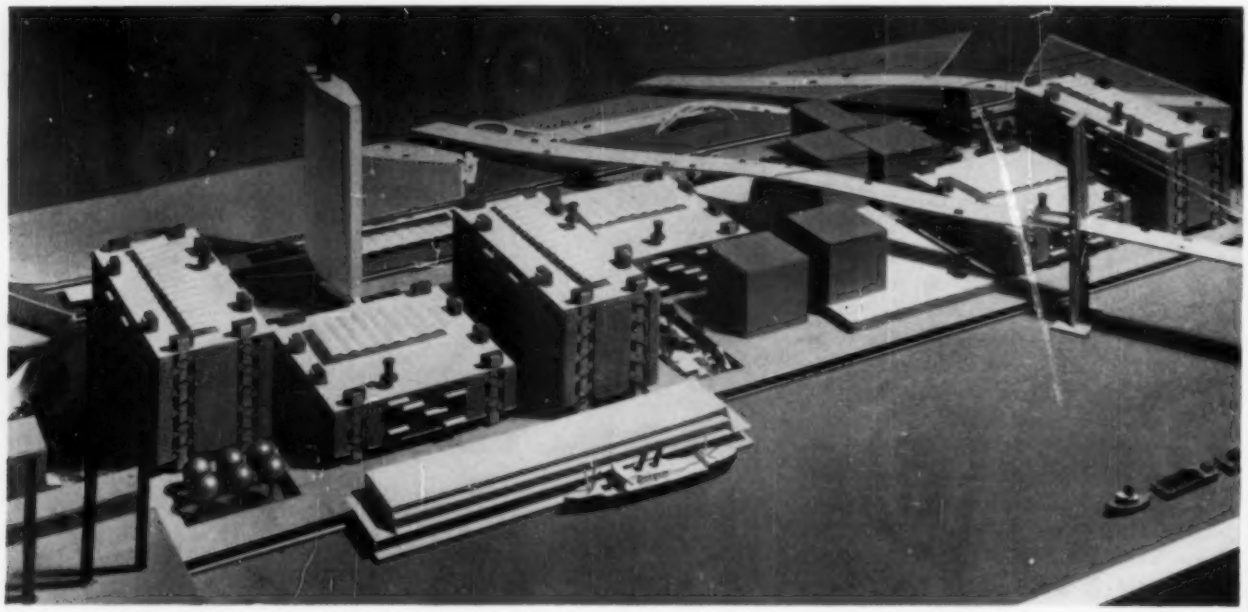
Our sites for Light Industrial manufacturing comprise eight to ten square blocks. The buildings are constructed in such a manner as to enhance the neighborhood where they are situated. Large green areas are left open, and a feeling of airiness is obtained. Parking facilities are situated on the fringe areas and, because of the walk-to-work principle, only a 1/12 parking ratio is provided. The trucks move into the area without interfering with cars or people, and adequate facilities for loading, unloading, and storage are provided. People move on a different level and do not come into contact with the internal-supply movement. The worker is provided with a pleasant working atmosphere. He has subway and surface lines usually within the site or immediately adjacent. He is provided with eating facilities, recreational facilities, shopping facilities, and health facilities—within the site.



To illustrate the development of a typical center for Light Industry, students selected one of eight actual sites (diagram acrosspage) *for detailed study. Shops, supermarket, administration building, lecture and meeting hall, as well as a bus terminal have been grouped near the subway station* (right of photo above). *Tower buildings and adjoining horizontal structures are factories for light, non-nuisance manufacturing. These are steel-frame structures with elevator and mechanical cores at the center, glass at the perimeter.*







All heavy industry will stretch along Brooklyn's west shore, generally in present location. The site selected for detailed study is in vicinity of Brooklyn and Manhattan Bridges. At the edge of the site is the commercial and administrative center with shops, a restaurant, and administration building. Several large existing buildings have been left and new factories added. Heavy Industry factories, in contrast to Light Industry, are reinforced-concrete structures which have elevators and utilities at the perimeters, leaving unbroken central expanses of factory floor.

Brooklyn Industrial Development

HEAVY INDUSTRY would include manufacturing where the floor area per individual is relatively high—approximately 500 sq ft per person. Therefore it takes less labor, but large space requirements to fill its needs. Included would be the most obnoxious and dangerous industries. Such would be the manufacture of chemicals, petroleum products, paint, rubber, glue, soap, and fertilizers. Other industries, not quite as obnoxious or dangerous also would be included in this area. These would include machinery, building materials, leather tanning, glass manufacture, structural steel, and stone products. In contrast to the Light Industrial areas, access to water and rail transportation is desirable.

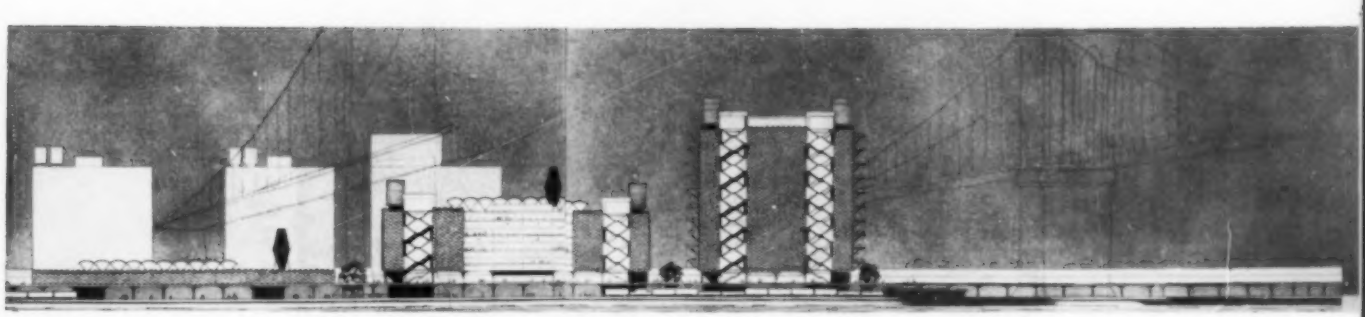
We propose to run Heavy Industry along the entire west shore of Brooklyn. Taken into consideration in the location of this area were the following factors:

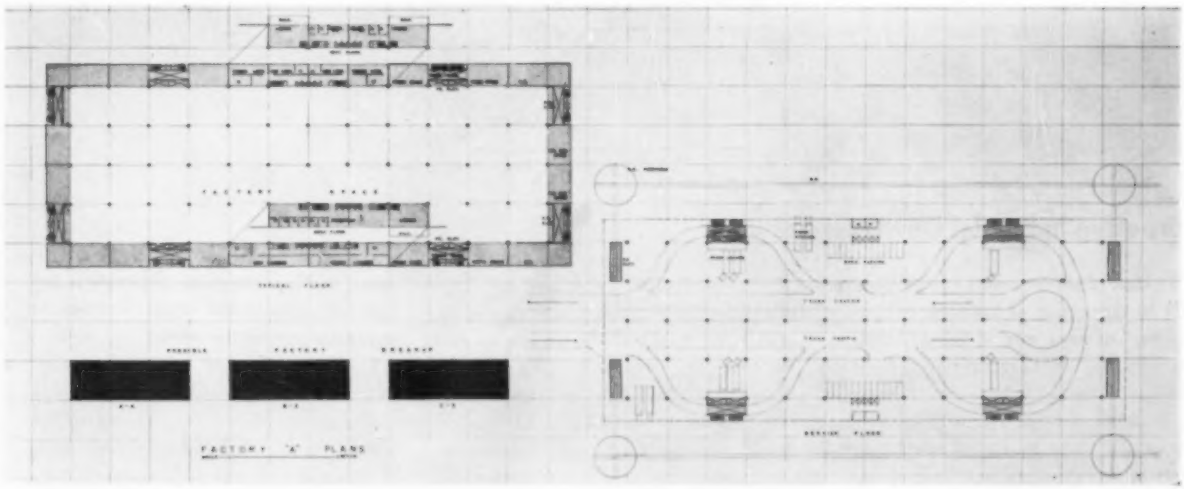
1. Present condition of area—large percentage of area is presently used for heavy industry, with the remaining area either slums or badly misplaced housing.

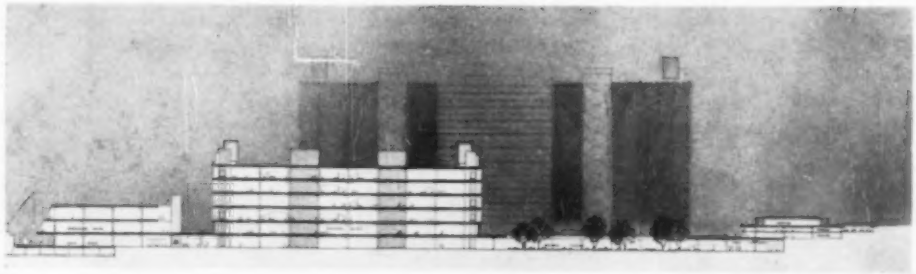
2. Labor force—Brooklyn would provide the labor force, and because of the nature of heavy industry, both skilled and unskilled labor would be required. This will offer vast opportunity for Brooklyn labor to find outlets for their employment.

3. Cost of land—as in the Light Industrial area, a detailed analysis was conducted to determine the cost per sq ft of land.

4. Transportation — this site provides ideal transportation for Heavy Industry. It has one of the largest ports in the world included in the area, main trucking routes, rail lines extending through the





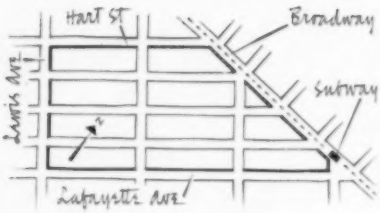


area to points in Long Island, Queens, and throughout Brooklyn. Because of the lighter conveying system, it is available to all main rail lines in the entire Port of New York. It is skirted by main vehicular routes, such as the Belt Parkway and the Brooklyn-Queens Expressway.

The site is one ideal for Heavy Industry. With the natural barrier of the water on the west and for the most part being on a decline from the east, it has the isolation required for this type of industry, and yet the accessibility from exterior sources of supply and labor. All train lines pass through this site on their way to and from Manhattan, and various surface lines dot the perimeter. All Heavy Industry would be located in this area, and the present facilities would be enlarged to provide through truck and rail routes, expand pier and warehouse facilities, and provide all internal and external links to the rest of the city, and to the Light Industrial areas.

On the site would be left all present worthwhile structures, generally those worth $200,000 or more. We then propose to erect new modern structures to meet the demands of a Heavy Industrial area of this sort. Parking would again be on the fringe area, allowing free and unobstructed access for internal truck movement. The worker will move on a different level from the trucks and supplies, and have all the facilities provided in the Light Industrial areas.

We chose to develop a portion of this site, which includes the Plymouth area, expanded to also include the area under the Manhattan and Brooklyn bridges.



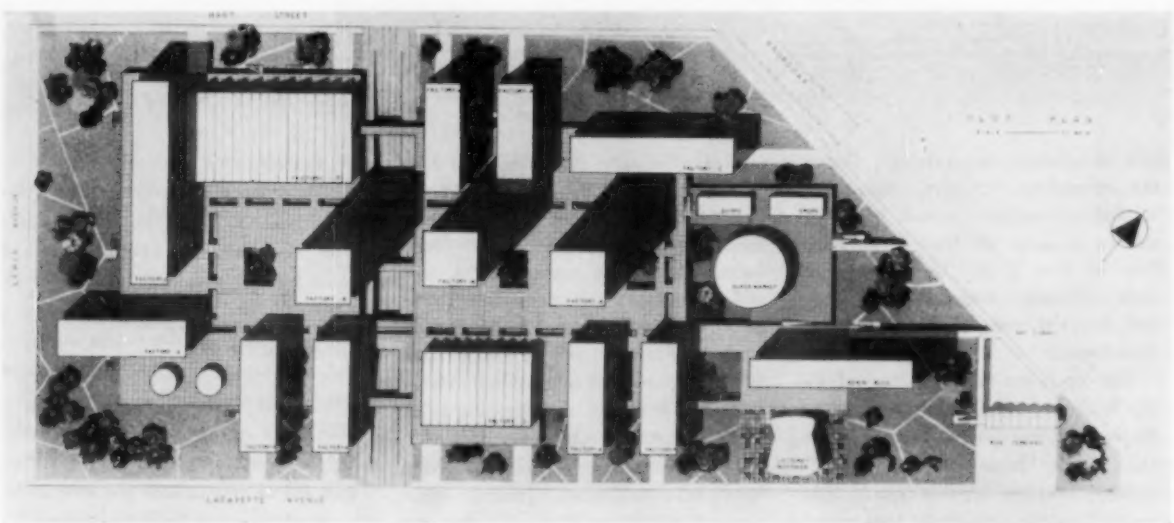
Brooklyn Industrial Development

We feel that our contribution does not lie in the zoning of industry in Brooklyn alone, but as a way of life to serve any metropolis. We have developed our ideas of city survival for Brooklyn, because we live, work, and have gone to school there —but the same principles could apply to any large city.

Most people think of the community center and shopping center as the center of the community. We believe, though, that in highly developed urban centers, a new technique has to be developed. It was our idea to move the "Economic Base" to the center of a neighborhood. We chose neighborhoods that had the lowest standard of living, and by placing Light Industrial units (*as shown below*) within the neighborhood we felt we could improve the standards. We demolish slums and build an industrial center. This allows the second and third worker in the household to work part-time and supplement the principal's income. Improving the real-estate value of the industrial site, would cause all surrounding real-estate value to rise. Hence, the one-time slum could develop into a handsome, high-rise, low-income, housing development with the self-contained industrial unit as its center. Trucking routes are separated from pedestrian areas, and because of its spaciousness and light atmosphere the center becomes an attractive part of the whole.

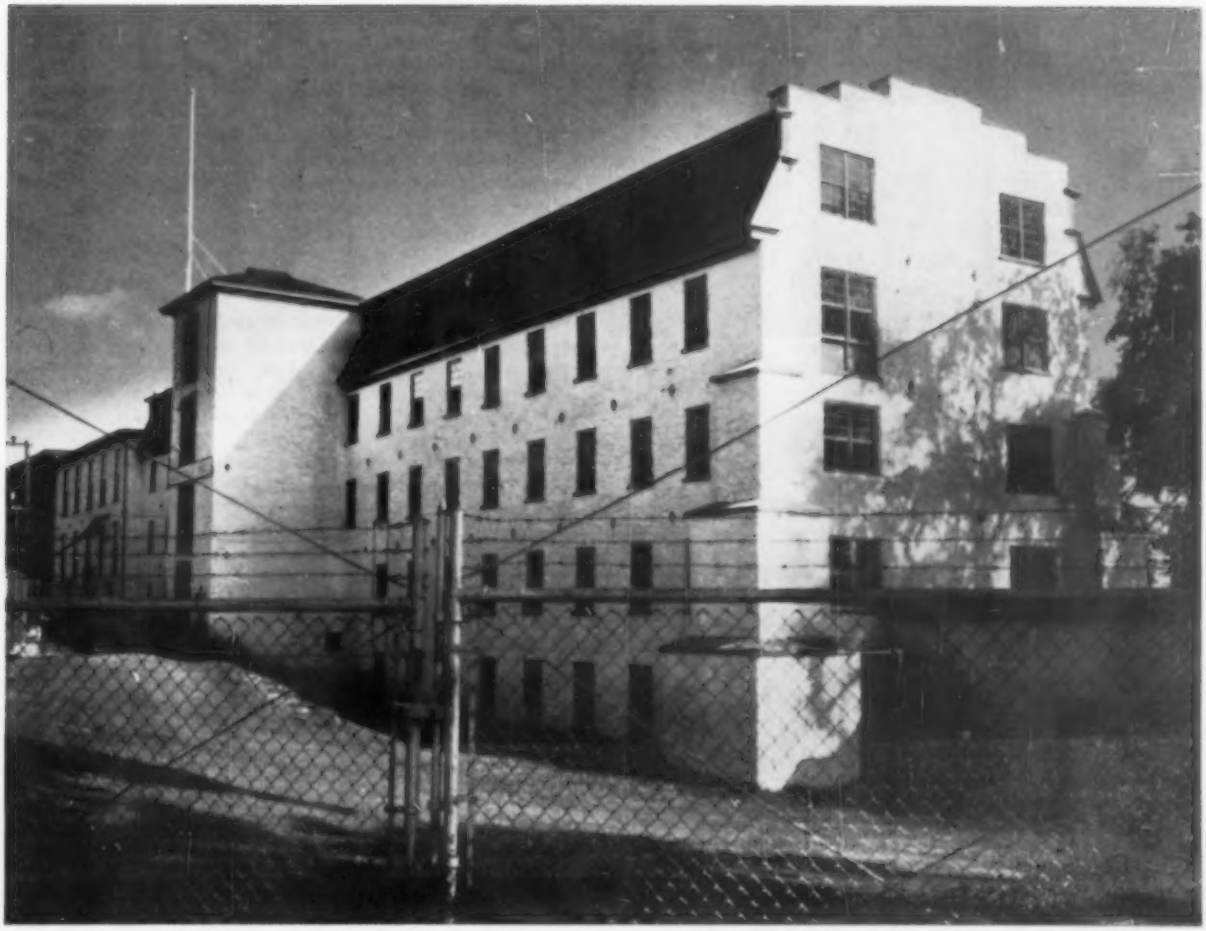
Large numbers of employes of each unit will actually walk to work, though this is not mandatory. Transportation and parking is adequately provided. Shopping is provided for, and even evening entertainment can be secured in the administration building and lecture hall.

How do we finance these centers? We feel the project is feasible with financial and administrative aid from the Federal Government, or undertaken by private investors willing to develop the site with a profit motive.

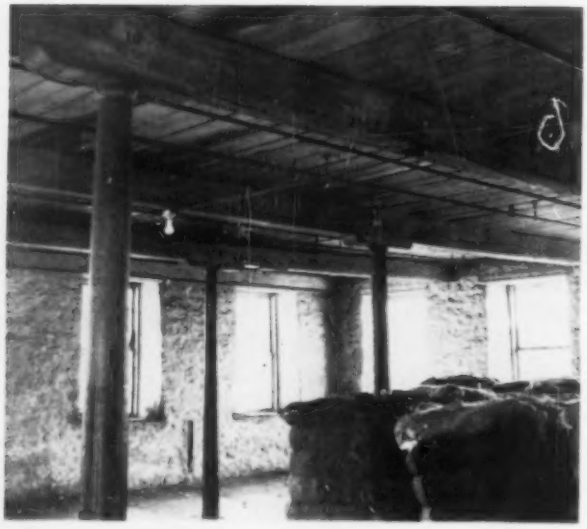


PROGRESSIVE ARCHITECTURE IN AMERICA

ALLENDALE MILL—1822
Centerdale, Rhode Island
Zachariah Allen, Designer-Builder



William H. Pierson, Jr.



William H. Pierson, Jr.

One of the greatest battles of modern architecture has been the fight against fire. A good part of the story of structural advance has been concerned with the search for fireproof materials and methods of construction, particularly in the field of industrial building. In America, although the New England textile factories of the early 1900's incorporated the latest manufacturing inventions, construction of the mills was conventional to the point of reaction. Partly due to the short supply of iron, these large structures continued to use traditional wood framing long after the English mills had turned to metal. They also continued to burn out with alarming regularity and insurance rates were correspondingly high.

The way in which the problem of fire control was solved is an impressive example of Yankee ingenuity. The solution was found, by necessity and choice, within existing materials and techniques, and was called "slow-burning" construction. Zachariah Allen's mill at Centerdale is the earliest known remaining example of a slow-burning factory, although the principle had already existed in 18th Century barns and utilitarian structures. Allen was apparently the first man to see its possibilities and to promote it for large-scale industrial building—revolutionizing both fire protection and fire insurance as a result.

This system was simple enough. The timber floors of most mill buildings (*top photo: Estes Mill, North Adams, Massachusetts, 1825*) were constructed in the best possible manner for a bonfire: planks across joists across beams offered a hazardous arrangement of air spaces and exposed wood. The joists, in particular, served as perfect kindling. By eliminating the joists completely, strengthening and thickening the beams, and introducing a second layer of planking, Allen substituted a floor structure with a minimum number of elements of exceedingly heavy wood (*photos at left and bottom: Allendale Mill*). The beams were increased in size to 14 inches, the 1-inch plank floor was replaced by a 4-inch floor of two layers—3-inch planks running across the beams topped by 1-inch boards laid in the opposite direction. Wooden columns supported the beams, as previously. This simplified, massive system proved extremely effective mill construction. A mill built by this method was slower to catch fire, slower to burn, and a fire was far easier to reach and control once it started. If the outside of the heavy members charred, the char insulated the inner core, lessening the possibility of the building's collapse and of the loss of property and life. A small, hot fire that might be enough to cause an iron support to give way could be extinguished readily with a minimum of damage; and the danger of a large blaze, of the kind that so consistently destroyed the earlier mills, was greatly reduced.

When Allen requested lower insurance rates on his new ways of preventing and controlling fire, he was refused. He solved this problem with typical New England independence by founding his own company in 1835, the Manufacturers Mutual Fire Insurance Company, which grew into an association of factory mutuals that eventually became one of the largest insurance organizations in the world. These mutuals would insure only buildings employing the Allen system. Thus slow-burning mill construction was established as standard procedure for wood-framed factories, and by the end of the 19th Century could be reckoned one of the most significant contributions to the design of American industrial buildings.

ADA LOUISE HUXTABLE

Information and photographs for this article generously contributed by William H. Pierson Jr. from his book (in preparation) on New England industrial architecture.

The following discussion has been taken from a chapter of Weather Conditioning of Houses, *to be published by Reinhold late next year. After establishing the basic environmental factors—and methods for their control—the author sets up a check list and cites the most suitable methods of control.*

check lists for environmental control of houses

by Groff Conklin

We are in the midst of a small-scale revolution in the design and construction of houses, although most architects and builders are only now coming to realize it. The fact that no more than four or five years ago books and articles on the subject of housebuilding were appearing with either minor references or no references at all to the subject that has caused this revolution—summer cooling—indicates how fast we have been moving. For summer cooling or year-round air conditioning is here to stay, and house design and construction is going to have to meet its challenge.

One result of the growing use of mechanical cooling has been a parallel increase in the importance of the various aspects of environmental control that can make the house pleasanter and more economical to live in. Many of these factors can, if correctly handled, considerably decrease the installation and operating costs of the heating and cooling plant. Others, while not having a direct economic effect, are important in improving livability.

The major emphasis—perhaps, indeed, too great an emphasis—is commonly placed upon those aspects of environmental control that involve the structure, and on those functions of the structure that have to do with the control of external heat, cold, and moisture. But the human animal has other senses besides those relating to temperature and humidity.[1] In thinking of the house only — or even primarily — as shelter against the elements, we are emphasizing the negative aspects of the environment —aspects which can physically damage us unless we are protected against them. It is perfectly true that protection against weather *is* the primary purpose of the house, but there are several secondary qualities of the environment, such as sound, which can also be effectively controlled by good planning and construction.

It is a matter of great importance that the non-thermal aspects of the environment not be forgotten by architects and builders in their attempts to cope with the basic problem, weather. These environmental factors are analyzed in the present outline just as thoroughly as those bearing primarily on thermal control.

Nevertheless, there is no doubt that shelter is the basic reason for houses. And the thermal aspects of shelter have, for economic reasons, become more important than ever before with the advent of summer cooling. Where only a few years ago almost the whole emphasis in the field of environmental conditioning for houses was on developing types of construction that would provide winter comfort and reduce first and operating costs for a heating system, today even more attention should correctly be devoted to the technical problems of house orientation, design and construction that will make mechanical cooling economical, even for moderately low priced dwellings.

To take a simple example: It used to be said that the value of thermal insulation was limited to winter-heating economy and living comfort. It might provide a slightly cooler house in the summer, but not enough to be important. One of the standard textbooks on insulation still in use has a section on the theory of "diminishing returns" for insulating material: the idea that the amount of insulating efficiency, in lower heat bills, provided by adding a third or fourth inch to the usual two-inch layer of material was so small that it would not pay for the cost of the extra insulation over the life of the mortgage.

But one of the startling new aspects of environmental conditioning involved in summer cooling is the fact that *it costs from three to five times as much* to remove a Btu of heat from a house in summertime as it does to add one in the winter. Thus the additional inches of insulation usually become an economic necessity when summer cooling is planned. The added thicknesses cuts the required size of the cooling unit to a point that more than pays the cost of the additional material. This is true almost everywhere in the United States, north as well as south.

Equal attention to the use of other materials and methods for protecting the house against variations in the external environment will pay equal dividends. If, as seems to be the general consensus, three out of five new dwellings built in 1960, and an even higher proportion in succeeding years, are going to have either hot-weather cooling or year-round air conditioning, depending on geography, the design and construction of houses to reduce as much as possible the cost of installing and operating such systems takes on great economic importance.

On the other hand, house design and construction for effective summer thermal control, even if mechanical cooling is not immediately contemplated, is becoming a constantly more basic requirement of home buyers. For one thing, houses so built are likely to have a higher resale

[1] *It is a curious fact that the "five senses" of common parlance (sight, sound, smell, taste, touch) do not even include the reactions of man to heat, cold, wetness, dryness. Perhaps this physiological phenomenon can be called the "thermal sense." It is considerably broader and less easy to define than the sense of touch, with which it has usually been associated in classical physiology.*

value, since an owner who can guarantee that his dwelling has been designed for the most economical installation and operation of summer cooling will usually be able to obtain a measurably higher price for it than otherwise.

But even for the original purchaser such planning is becoming a marketable commodity. The popular magazines, both through their features and their advertising pages, are emphasizing more and more how good design, planning, orientation, and construction can increase summer comfort by themselves. Good ventilation, shade, and heat resistance, even when not prefixed by the dollar sign of a mechanical cooling system, are tangible values. The practice of the principles of environmental control may add a few dollars to the first cost of the house, true. But the cost will not only be acceptable to, it will be demanded by, the intelligent house buyer, as he becomes more aware of the comfort values the use of such principles can add to pleasure in living, and of the economic values they can add when it comes to resale.

There is no doubt that—particularly in the lower price ranges, and among the less responsible builders—hundreds of thousands of inadequately planned and built houses will continue to fester on the American scene. As one engineer recently wrote, referring to such builders: "You can save money by taking all the studs out of a wall, but you sure as hell are going to have a time keeping up the roof! . . ." As long as cheap houses can find a market, so long will such sleazy structures be built. But for the great majority of architects and builders—and developers, realtors, and mortgage finance institutions, who also have a substantive interest in the problem—the task of controlling the environment through good design standards and construction practices will offer a welcome challenge to ingenuity and efficiency.

As emphasized before, this discussion is concerned not only with external thermal factors, but also with the broader spectrum of the *total* environment: sound as well as heat, materials deterioration as well as humidity, etc. In the outline that follows, equal attention is given to all of them, not just to those that influence the economics of air conditioning.

factors/control methods

There are ten aspects of the environment that can be brought more or less under control through the use of sound planning principles and construction techniques, as follows: (1) temperature; (2) humidity; (3) precipitation; (4) solar radiation; (5) air motion; (6) environmental contaminants and pests; (7) sound; (8) vision; (9) wind and snow load; and (10) fire. There are in each case up to six methods of achieving the best measure of control possible, in their relation to the house: (a) site selection; (b) orientation; (c) planning; (d) construction; (e) landscaping; and (f) mechanical equipment.

In analyzing these environmental factors and the methods of controlling them, it is important to remember that Nature is always presenting us with extraordinarily complex and often contradictory situations. Almost no aspect of the environment can be brought under measurable control without affecting one or more other aspects. If one orients the house to take advantage of prevailing summer breezes, he may later find that the structure is cruelly vulnerable to wintry blasts and snowstorms. On the other hand, it may not be: for the "microclimate" of the immediate locality may indicate prevailing winds from one direction in warm weather and from an entirely different direction when it is cold. Similar inconsistencies will be found in many other aspects of the environment.

More generally, a dwelling in the Texas Panhandle will require an entirely different program from one in a Vermont valley. Regional as well as local variations must be carefully analyzed before a house can be effectively fitted into its environment. This may sound like a truism, but it is astonishing how often it is forgotten.

In any event, the following descriptions of the purposes and techniques of controlling each environmental factor must be read with the knowledge that many adjustments may have to be made before the general pattern can be applied to a specific dwelling in a specific location.

1. Control of interior temperature on a year-round basis, to provide comfort within the house regardless of outside temperatures.

a. By site selection: near a lake or running stream, if possible, since bodies of water tend to even off extremes in temperature; under lee of hill, if there is one—but *not* in low, breathless pocket of land; in region known to possess good prevailing summer breezes; plenty of natural foliage—healthy trees and shrubs—if it can be found; preferably not flat, both for visual variety and for the protection from wintry blasts a sheltered hillside site affords.

b. By orientation: locate so major glass areas will receive maximum sun in winter and minimum in summer, and so openings will be protected against wintry blasts and will admit summer breezes.

c. By planning: arrangement of rooms so that living areas face sheltered exposures and bedrooms, garage, kitchen, etc., face less sheltered areas, at least in climates with severe winters and strong winds; fenestration to avoid ex-

cess exposure of large glass areas to winter wind and summer sun, if local climate makes this possible. In hot climates, relatively open plan, to make best use of natural ventilation, but in cold climates, plan should ideally approach the square, perhaps with interior, protected court. In extra dry hot climates, square plan with interior court is also often desirable.

d. By construction: insulation, weatherstripping, double glazing, winter; same, plus sun-control devices, special roof constructions, heat-absorbing window glass (if necessary), summer. For non-air cooled houses, weatherstripping and double glazing not necessary in summer.

e. By landscaping: deciduous trees for sunlight in winter, shade in summer; minimum of heat reflecting drives and terraces, and maximum of grassy lawns and flower gardens immediately around house for low summer heat gain; climbing vines (on trellises or arbors) as summer sunshades where trees are unavailable.

f. By mechanical equipment: heating system in winter; mechanical cooling in summer; mechanical ventilation as required for both seasons.

2. Control of relative humidity within the house, to maintain it at a more or less constant comfort level the year around, and to reduce or eliminate the danger of damage to house construction from winter condensation, and high cooling bills from excess air moisture and latent heat in summer.

a. By site selection; not in low, damp pocket of land; good prevailing summer breezes desirable.

b. By orientation: house so placed to take fullest advantage of summer breezes, and to be protected from winter winds, if possible.

c. By planning; maximum utilization of natural ventilation, winter and summer, through planned fenestration and ventilating methods. Exception: in regions of severe storms and winds, a compromise will have to be arrived at between optimum ventilation and storm protection.

d. By construction: effective vapor barriers at top, sides, and (if needed) bottom of house; attic and other ventilation to reduce vapor pressure in winter and sun-heat load in summer; reduction in moisture-producing activities (particularly in summer) by venting stoves, laundry equipment, etc., and by providing powered exhaust ventilation in baths, kitchens, and laundries to reduce latent heat.

e. By landscaping: shrubbery and trees kept sufficiently distant from house to permit adequate air circulation and evaporation of moisture vapor in summer. In some climates, this will mean avoiding trees that overhang the roof, since during the summer they can keep the house uncomfortably damp.

f. By mechanical equipment: forced exhaust ventilation—attic, or roof, kitchen, bath, laundry, etc., primarily in summer, but also in winter if conditions are excessively humid; humidifiers (winter) and dehumidifiers (summer)—but only if conditions within the house (especially the basement) are so severe that they cannot be remedied in other ways.

3. Control of precipitation, to prevent external moisture from damaging the structure and from penetrating it through cracks and joints; and to minimize the danger of floods.

a. By site selection: location sheltered from driving rains and winds; well above any conceivable high-water mark along streams that have histories of flooding. Avoid damp or swampy areas.

b. By orientation: location on lot to take full advantage of natural shelter against storms—lee of hills, existing vegetative windbreaks, etc.—and to minimize danger of rain or ground water collecting around or under house. If site is near running stream, locate if possible at highest point to minimize flood danger.

c. By planning: essentially the same as in section on Temperature Control, above.

d. By construction: tight and weatherproof building materials and techniques; quality flashing at all roof and wall openings and at foundations where necessary; ½″ mesh screen over gutters to prevent leaves from clogging and causing water and snow backup; subsurface rainwater drains to carry water from downspouts away from house; moisture resistant exterior treatments such as paints, masonry waterproofing materials, and, where needed, waterproof calking, grouting, putty.

e. By landscaping: moderately dense plantings along, but not too close to, sides of house on which worst storms usually beat (sufficiently distant to permit efficient drainage around house); grading away from house on all sides to prevent collection of rainwater around foundations; thick sod around periphery to reduce danger of seepage of water into foundation.

f. By mechanical equipment: sump pumps if area under house (basement or crawlspace) cannot be kept dry otherwise. *Note:* if sceptic tank must be used, locate safe distance from house, and design so effluent will drain away from house.

4. Control of solar radiation, so that the sun's direct rays will supplement the heating system during the winter and will be kept out of the house in the summer as much as possible.

Note: Methods of control are essentially the same as with temperature, except that, air temperatures being equal, sun control devices and heat-absorbing glass can be very important in certain regions (hot, arid, treeless) and less so

in others (temperate, humid, with adequate natural shade). It should also be pointed out that house locations too close to *unshaded* bodies of water will add considerably to summer cooling load by heat reflection, although the same location may be good for the non-air-cooled house because of lake breezes, etc. In very hot regions which have an ample water supply, a roof pool or sprinkler system will help reduce cooling load and increase personal comfort.[2]

5. Control of air motion, to reduce vapor pressure in the house in winter and cooling load in summer, and to add to summer comfort in non-air-cooled houses.

a. By site selection: region of good natural breeze, particularly summer.

b. By orientation: house located so prevailing summer winds will blow through it rather than bypass it, and winter winds will help ventilate attic, if the two can be combined. If possible at the same time, protect glass areas from most winter winds and storms.

c. By planning: location of sleeping rooms to obtain maximum benefit from prevailing summer breeze (in non-air-cooled house); fenestration in such a house planned to provide through or cross ventilation whenever possible; elimination of "dead" spots, spots without air motion, by provision of extra louvers if necessary. (*Note:* In houses with mechanical cooling, summer breezes are important only to the degree that they help reduce cooling load, which they do to only a minor degree.)

d. By construction: even in houses with year-round air conditioning, operable windows or adjustable louvers or vents below or above fixed windows, for comfort during periods of moderate weather; adequate screened openings in flat or pitched roofs and clerestories, basements and crawlspaces, for air circulation to reduce condensation danger in winter and make full use of prevailing breezes in summer.

e. By landscaping: when it does not interfere with winter function as wind- and storm-break, elimination of heavy plantings that might reduce penetration of summer breezes into house.

f. By mechanical equipment: powered exhaust fans where needed: attic or flat roof (the latter with powered rotary ventilators on roof when necessary), bath, kitchen, laundry, etc.; adequate powered air intakes and/or exhausts in standard heating and cooling equipment.

6. Control of environmental contaminants and pests, to reduce airborne dirt and odors, eliminate hazards from flying insects, keep earth-bound pests such as termites, rats, squirrels, etc., from damaging the structure, and do away with the danger of decay and other bacterial and fungus enemies of the house.

a. By site selection: safe distance from industrial and other air- and water-polluting sources; site naturally protected against termites and other pests, i.e., not too damp or thickly wooded, and not already known to be infested.

b. By orientation: location as high as possible on well drained plot and safely distant from thick surrounding woods, if any.

c. By planning: location of incinerator and other odor- and dirt-producing equipment and activities a safe distance from house and in direction toward which prevailing winds blow, i.e., so that dirt and odors will not blow toward house; placement of doors, windows, and other openings so that pests cannot enter, moderately above ground level.

d. By construction: weathertight construction; termite shields near ground; wood near ground dipped or pressure-treated with preservatives when conditions require; screens at all openable windows, all exterior doors, all ventilating louvers or windows in attics, basements and crawlspaces; avoidance of any wood construction in contact with the earth; thorough clearing away of dead organic material from periphery of house and from back-fill.

e. By landscaping: plantings a safe distance from walls and foundations, to reduce danger from termites and other pests.

f. By mechanical equipment: electrostatic or other air cleaning equipment when essential, particularly in houses without air conditioning units that filter incoming air; if basement is damp, dehumidifiers to keep wood dry and reduce danger of decay and termites; outdoor insect traps, electrical or chemical, when conditions require.

7. Control of sound, external and internal, to provide a quiet and restful environment in the house and in each room of the house where quiet is desired.

a. By site selection: greatest possible distance from airports and heavily traveled airlanes, noise-producing industrial and transportation activities (factories, railroads, major highways), shopping centers and other commercial centers, schools, other houses, etc.; if possible, a site that has good natural protection from unavoidable sound sources, such protection being hills, thick natural growth of shrubs and trees, etc.

b. By orientation: windowless wall or garage or both facing unavoidable

[2] *It will be noted that there is no mention here of glare or "daylighting." This is intentional. Scientific distribution of sunlight within rooms is often important in nonresidential buildings, but in houses it does not, in most instances, require separate consideration. The kinds of landscape and structural treatments required to reduce solar radiation as a heat factor also automatically take care of glare; and as for distribution of daylight in rooms, most people would not even like an even daytime illumination. Daylight variety within a room is phychologically important; light and shadow are desirable, in homes if not elsewhere. The clerestory is not used to bring light so much into the depths of a room as into areas otherwise windowless. And clerestories need sun control devices too!*

sources of noise; house set as far back from street as practical; location to take fullest possible advantage of natural barriers to sound.

c. By planning: (outdoor noise sources) organizing rooms so that those needing most quiet are as far as possible from street and from nearby houses; (indoor noise sources) segregation of quiet rooms from noisy ones such as music room, kitchen, playrooms, etc.; (within rooms) dimensioning rooms to minimize reverberation.

d. By construction: (outdoor noise sources) structural cross-sections designed to reduce sound transmission, such as masonry, heavy frame construction with lath and plaster, double glazing if external noise is excessive; (indoor noise sources) sound transmission reducing structural cross-sections between rooms when a noisy room has a common wall with a quiet one (bathroom, bedroom), and—in two-story houses—floors designed to reduce transmission of sound by impact; (noise within room) acoustical insulation in ceilings of noisy rooms, sound-deadening wall and window treatments (particularly for music rooms), carpeting or large rugs on floor, and selection and arrangement of furniture to interrupt sound waves and reduce reverberations; (equipment noise) acoustical mounting of laundry equipment, air conditioning equipment, etc., isolation of equipment when possible, selection of quiet types of equipment if available, and use of acoustical insulation and noise baffles in air ducts for heating and cooling equipment.

e. By landscaping: wood or, preferably, masonry walls between house and objectional noise source (street, house next door, play area of own site); separation of play and other noise producing areas from quiet areas by distance, if possible; dense plantings of evergreens (not deciduous trees, which lose their slight acoustical value in the winter) both for privacy and for minor sound reduction as well.

f. By mechanical equipment: none—there is no machine that produces silence.

8. Control of visual environment, to provide the best possible relation of house to landscape, thus blocking out wherever possible the less attractive aspects of the surroundings.

a. By site selection: obvious.

b. By orientation: segregation of all outdoor work areas from areas of best seeing; house so placed that most-used windows get best view (not always possible in view of other requirements under previous heads).

c. By planning: obvious. But it also should not be forgotten that the house itself is part of the visual environment, especially during warm weather when the occupants will often be outside looking in. Therefore the house should be no less attractive than the views from its windows.

d. By construction: no application, outside of specification of good-quality window glass!

e. By landscaping: obvious

f. By mechanical equipment: no application, except negative: sequester all exterior equipment and machinery out of sight of best views.

9. Control of wind and snow loads, as well as other aspects of house construction, to assure a safe and secure dwelling against all foreseeable hazards of the elements.

Note: All aspects of control are the same as for temperature or for precipitation, except:

d. By construction: careful following of accepted general (and, when conditions are extraordinary, local) engineering requirements for dimensioning structural members and for fastening them; due attention to adequate nailing practices for shingles and siding, as well as studs, joists, rafters, beams, etc. Local records for extremes of wind and snowfall should be checked before final specifications.

10. Control of fire hazards, to protect dwelling from external dangers such as brush and forest fires, fires in other houses, lightning, etc.

a. By site selection: avoidance of site too closely hedged in by forests or brush in an area subject to seasonal dry spells and consequent wild fires.

b. By orientation: adequate belt of open lawn between house and any fire-hazardous brush, meadow, or woods.

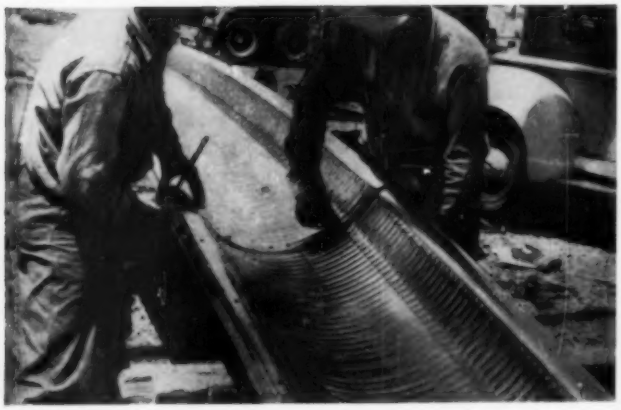
c. By planning: See construction.

d. By construction: specification and use of fire-resistant building materials and methods—exterior masonry walls if economically feasible; slate or asbestos-bearing roof shingles, or metal, also if not too costly; lightning rods if in rural areas without proper municipal or volunteer fire fighting equipment within easy reach. *Note:* these recommendations cover fire hazards from without only. Fire safety within the house is not a part of the present subject.

e. By landscaping: location of fire hazardous materials (oil tanks, bottled gas, wood piles, rubbish piles, etc.) in protected areas safely away from house; wide lawns (which should be kept well mowed!) in areas subject to brush fires; if economically feasible, a swimming pool or other source of water for fire fighting, provided local water sources (municipal or otherwise) are inadequate.

f. By mechanical equipment: efficient portable fire extinguishers indoors and out, preferably of the new type that will control both dry-materials fires and oil fires. If area is far from public fire-fighting equipment, pumps to take water from stream or pond to site of the fire.

Phoenix Coliseum



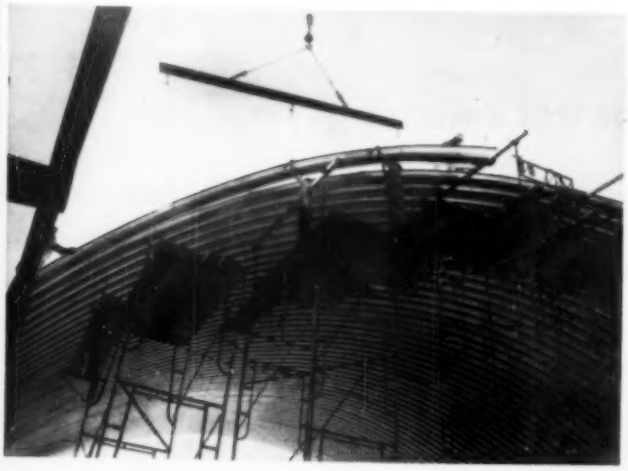
Workmen assemble pre-engineered, curved sheets of 18-gage galvanized corrugated-steel which form self-supporting arches of trussless-steel roof.

World's largest trussless-steel roof—120′ x 260′ and costing one-third less than conventional roof structures—was erected at Phoenix. Although it spans a $3¼-million Coliseum, actual steel-roof cost was but $0.75 per sq ft, exclusive of erection costs, which averaged $0.15. The roof was erected completely in 450 man hours: an average of 7½ men worked eight hours per day for 7½ days.

This "Wonder Roof" consists of curved, 18-gage galvanized-steel sheets—two ft wide and from six to ten ft long—fastened together by nuts and bolts to form self-supporting arches. Although less than 1/16 in. thick, the steel roof will withstand hurricane-force winds in excess of 113 mph and will support loads up to 42 psf (equivalent to 5½ ft of snow). Thermal insulation as well as acoustical treatment—the Coliseum is completely air conditioned—are provided by a ½-in. layer of vermiculite acoustical plaster. This material was machine-sprayed directly to the metal underside of the corrugated curved ceiling.

The trussless design eliminates columns, trusses, or other supports and provides an unobstructed view from any of the 500 permanent seats. Height above floor—40 ft at center—permits circuses and other attractions requiring unusually high ceilings.

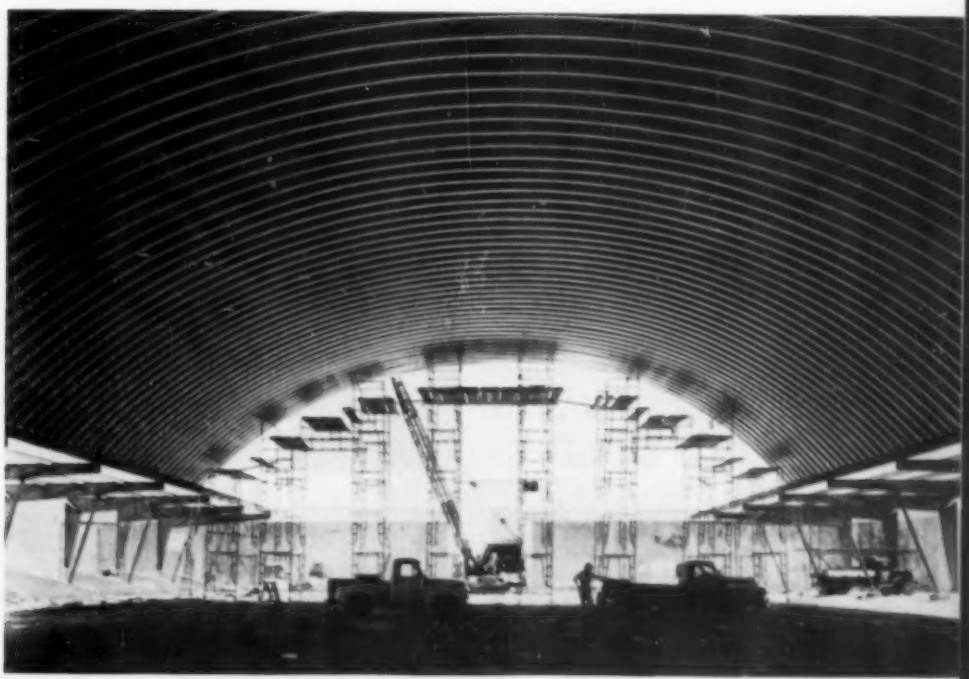
Wonder Corporation of America, Chicago manufacturers of pre-engineered steel buildings, fabricated the steel components of this roof.



Steel sections—two ft wide and from six to 10 ft long and fastened together by nuts and bolts—are guided into place during erection (left).

Arches are supported at springing by structural-steel bents (below).

Aerial view of Coliseum shows exterior of patented trussless roof design (bottom).



low-voltage remote-control switching

Recently, a successful low-voltage remote-control switching system has been developed for the residential, commercial, and industrial fields. Inclusion of low-voltage remote-control relays containing miniature built-in transformers makes the system operable. Each relay fits into an outlet box or wall outlet and can be controlled from a series of silent remote switches. Since there is no wiring back to a central transformer, it is possible to use a limited number of relay-switch combinations economically. Last summer this system—manufactured by the Pyramid Instrument Corp., Lynbrook, New York, and known as Remcon—was installed in a large residential development at Oceanside, Long Island, by Ballin, Glicksman & Langfur, Builders. Although Remcon has undeniable attraction as an added selling feature for the builder, it is also a definitely worthwhile refinement for the custom-designed house.

At Oceanside, the remote-control switching was incorporated in the following manner: From a five-switch master panel at bedside in the master bedroom, there is instant control of lights on the front portico, front yard, foyer, and rear patio. The fifth switch controls a plug-in outlet

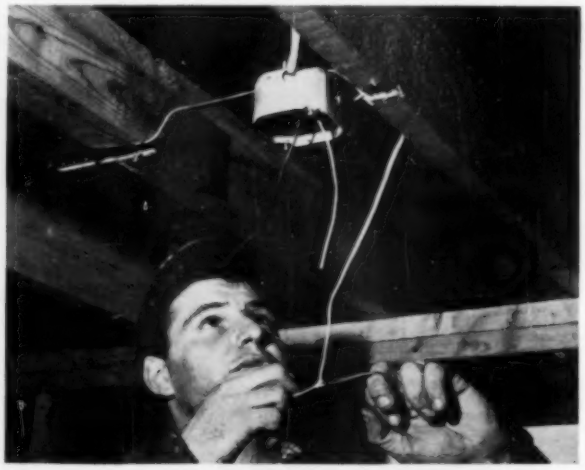


Figure 1—bell wire is stapled to studs as it is run from knock-out box to plaster ring (below).

Figure 2—bell wire is stripped at knock-out box exposing red, white, and black insulated conductors (upper right).

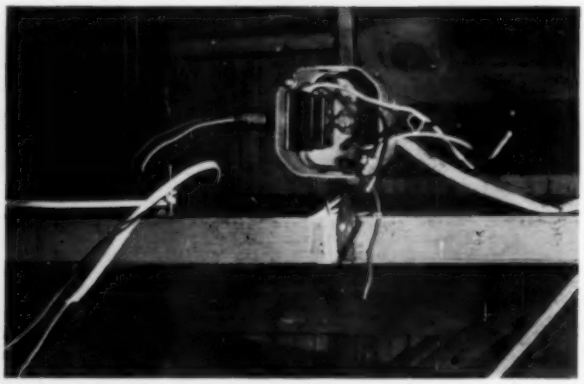


Figure 3—relay is in place with red, white, and black wires of switch leg ready for connection with corresponding wires of relay (above). *Relay is also ready for high-voltage connection.*

in the kitchen which can, for example, start the morning coffee. Remote-control switches in each bedroom control a light in the upstairs hall, as does another switch at the foot of the stairs on the first level. A three-way switch panel in the foyer controls portico, front yard, and foyer lights. A single switch in the kitchen also controls the portico light and another in the den controls the patio lights.

When roughing-in, the electrician installed his outlet boxes and ran in 110-v wiring. After installing plaster rings at switch locations (unlike conventional switching Remcon's six-volt wires only require a simple plaster ring), he then connected the outlet boxes and switches with three-conductor thermoplastic #18 bell wire (*Figure 1*). After skinning bell wire at plaster rings, roughing-in of switches was completed. Next, the relay transformers were installed (*Figures 2, 3, and 4*). Finally, after walls were erected, low-voltage switches and wall plates were placed (*Figures 5 and 6*). In the master bedroom five-switch installation, there were five three-wire conductors to be connected to the five individual silent switches that fit into the wall plate.

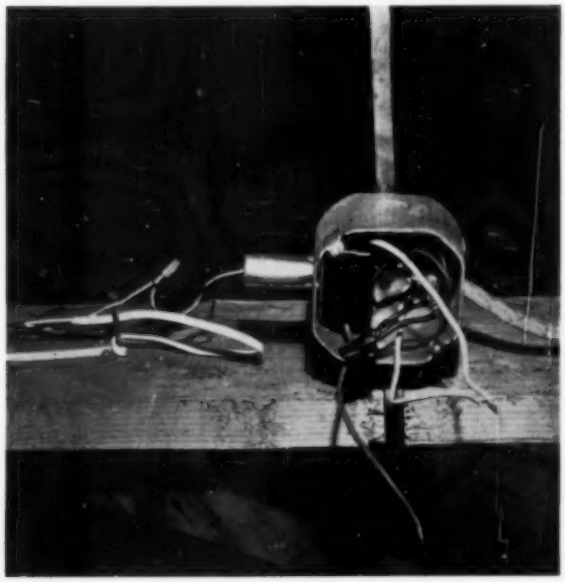


Figure 4—box is completely wired and ready for fixture. Wires of switch leg have been connected to relay. Black and white high-voltage wires of relay have been connected with corresponding 110-v wires. White wire, acting as a common ground, and the red wire are later connected to fixture.

Figure 5—electrician snaps five switches into mounting plate for master bedroom control (below left).

Figure 6—switch plate (which can be painted any color) is screwed into place to complete installation (below right).

concrete block: sound-reduction properties

Sound barriers are usually considered most effective in proportion to their mass density. Thanks to technical research, however, much "sound" advice is being passed along to architects and builders as to the excellent acoustical qualities of lightweight construction materials.

Noise reduction is achieved in one of two ways, depending on where the source of the sound is in regard to the listener. If the listener is in the same room as the source, reduction is attained by a sound absorbing material in that room. If the listener is in a room separated from the source, reduction is brought about by a wall having a high transmission loss or sound-insulation property. A material which has a high absorption coefficient usually has a low transmission loss. When the surface of such a material is changed, as in the painting of a concrete-block wall, sound-absorption values will usually drop.

The average sound-transmission loss of partitions of ordinary wood and plaster or concrete ranges from approximately 25 to 55 or 60 db. A reduction factor of more than 50 db is considered more than adequate even when fairly high noise levels are to be resisted.

Architects, including those versed in acoustics, do not always agree on the transmission loss necessary for a desired degree of quiet or sound isolation. In general, acceptable factors are 40 db for school corridor walls and party walls in apartments, and 50 db for partitions separating music rooms and auditioriums from other rooms and exterior sounds.

Desiring additional data on noise control, the National Concrete Masonry Association in co-operation with the Armour Research Foundation of the Illinois Institute of Technology recently conducted a series of tests on the sound-reduction properties of concrete-block walls. Forty-three of these tests were devoted to sound transmission loss; six tests to sound absorption.

All blocks tested were of uniform texture and standard commercial quality, meeting ASTM specifications. Panels were erected in a wall opening, 6′-2″ wide and 7′-5″ high, at the reverberation chamber in the Institute's Riverbank acoustical laboratory. Those tested for sound-transmission loss were of single-wythe construction of varying thickness, both hollow and solid, unpainted and painted on both surfaces, and of three aggregate types. Cavity walls of two different aggregate block having two cavity spacings were also tested. Sound-absorption tests were made on four-in. hollow block, unpainted and painted.

Results indicate that transmission loss from sound traveling through a concrete masonry wall is not necessarily a function of the weight of the wall per sq ft. Such loss usually increased with wall weight, but the relationship was not always consistent. In general, loss was greater for heavy or dense aggregate block walls than for lightweight units of similar design and thickness. Greater transmission through lightweight panels apparently stemmed from differences in respective concrete porosities rather than aggregate materials.

Block design had a significant effect on sound loss. Expressed in terms of loss per pound of wall area, hollow block were on an average about 75 percent more efficient than solid units. Plugging block core spaces with low-density-insulation fill had little effect on the sound-transmitting properties.

In every instance the application of paint to wall surfaces boosted transmission loss. Cement base paint increased loss more than resin emulsion—due to the method used in its application rather than in differences of paint type. Dense block panels, without surface treatment, showed up to 20 db greater sound control than those of lightweight aggregate, but the application of one coat of cement-base paint virtually eliminated this advantage.

Concrete-masonry cavity walls were extremely effective in reducing transmitted sound even when not painted. Loss properties were increased by back plastering; a treatment which increased transmission loss of lightweight cavity wall without too great a weight increase. A substantial rise in loss occurred when using dense aggregate block for one wythe and lightweight block for the other, because of heavier aggregate and less porous construction.

Sound-absorption tests were conducted to determine the effect of heavy paint coatings on the noise-control properties of block. The experiments differed from those on sound transmission in that panels were constructed in a horizontal position and an entire test took place in one room. Test procedures consisted of generating a sound-

pressure level of about 110 db by means of a loudspeaker in one corner of the room, then turning off the sound source and measuring the time rate as the sound fades away.

Results showed a marked reduction in the sound-absorption value of the material once paint was applied to its surfaces. The resin emulsion had less effect on the absorption coefficient than cement-base paint, although the reduction was significant. It was noted that heavy paint films which seal surface pores and thus decrease sound transmission will also diminish sound absorption value.

Data presented (*see table*) graphically demonstrates concrete masonry construction as an excellent means of achieving sound control in residential, public, and commercial buildings.

AVERAGE SOUND TRANSMISSION* LOSSES FOR VARIOUS CONCRETE MASONRY WALL CONSTRUCTIONS

Wall Description		Average Sound Transmission Losses for Various Wall Treatments, Approximate Decibel Range					
Construction	Aggregate	Untreated	No. of Tests	Painted	No. of Tests	Plastered	No. of Tests
3" Hollow	Lightweight	36	1	44	1	42-45	2
4" Hollow	Dense	43	1	45	1	-	0
	Lightweight	32-38	8	38-47	7	35-50	7
4" Solid	Dense	36	1	49	1	-	0
	Lightweight	26-32	3	-	0	-	0
6" Hollow	Dense	49	1	51	1	-	0
	Lightweight	36-45	5	52	1	49	1
6" Solid	Lightweight	25-40	4	31-49	6	-	0
8" Hollow	Dense	52	1	53	1	-	0
	Lightweight	33-48	4	43	1	51-53	4
12" Hollow	Lightweight	52	1	-	0	54	1
Cavity Wall Two 3"	Lightweight	-	0	-	0	56**	1
Cavity Wall Two 4" Hollow	Lightweight	42	1	-	0	52-57**	2
Cavity Wall One 4" One 4"	Dense / Lightweight	53-54	2				
Sub-Totals		Untreated	33	Painted	20	Plastered	18

* Data are from various tests as follows:

1. National Bureau of Standards Report BMS17 ..... 2 tests
2. National Bureau of Standards Supplement to Report BMS17 ..... 2 tests
3. Data reported in Acoustics and Architecture by Paul E. Sabine ..... 2 tests
4. Tests conducted at Riverbank Laboratories ..... 22 tests
5. National Concrete Masonry Association tests conducted at Riverbank Laboratories ..... 43 tests

Total 71 tests

**Cavity walls plastered on one unexposed face (cavity side).

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Reinforced-Brick Masonry Design. Harry C. Plummer, Sept. '55.
Materials for Gamma- and X-ray Protection. C. B. Braestrup, Sept. '55.
Geodesic Dome for Brooklyn Dodgers.* Nov. '55.
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Synthetic-Rubber Calking Compounds. J. R. Panek, June '56.
Copper-Sheathed Domes. June '56.
Cold-Glazed Cement Finishes. Guy G. Rothenstein, Oct. '56.

environmental control

electrical
Apartment Air Conditioning: Effective Electrical Reinforcement. Nov. '55.
Adequate Wiring in Existing Apartment Houses.** Mar. '56.
High-Voltage Distribution: New York Coliseum.** May '56.

September 1955-December 1956

Communications, Electronics, and Automation. May '56.
Preplanned Adequate Residential Wiring.** June '56.
Charlotte Coliseum. Sept. '56.
Low-Voltage Remote-Control Switching. Dec. '56.

equipment

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heating and air conditioning

Simms Building. Sept. '55.
High-Temperature Hot-Water Heating.** Oct. '55.
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Air Conditioning: Office Modernizaton.** Nov. '55.
Decentralized Heating.** Dec. '55.
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lighting

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others

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The Specification of Terrazzo Floors

by Harold J. Rosen

No one individual can uncover all of the research that has been undertaken in the building-construction industry. What makes this so is the absence of a central clearing house for this type of information. Perhaps the Building Research Advisory Board and the Building Research Institute may eventually provide the means to this end, having made a good start in this direction in the few years of their existence. The recommendations of this writer are therefore limited to the information which he has been able to discover. Doubtless there are many bits of information which requires channeling to the proper focal point for dissemination to all interested parties. Those of you who have personal knowledge of additional information and wish to contribute to the advance of the building-construction industry are invited to send in your recommendations or criticisms of the material appearing in these columns so that the science of building technology will benefit from the combined knowledge of all of us. The discussion of specification of terrazzo that follows is presented with that invitation in mind.

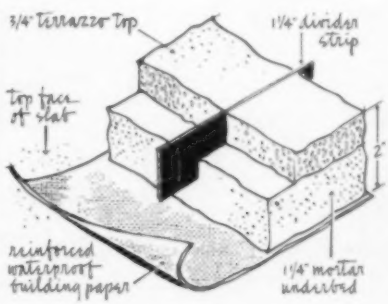
•

Terrazzo as a flooring material has had a favorable use-experience that is centuries old. Made of a mixture of colorful marble granules and a portland cement matrix, terrazzo possesses a durable, pleasing, and sanitary surface when properly maintained. Besides being used as a floor, base, and border material in such places as building lobbies, school corridors, hospital flooring, including operating rooms, terrazzo is also used for stair treads and risers, indoor skating rinks, wainscot, and wall surfaces.

However, despite the use of divider strips (both metal and plastic) to localize flexure cracks, cracks in terrazzo have occurred away from the divider strips, and some designers have been deterred from the use of terrazzo because of these failures. The floated type of terrazzo floor construction is recommended to overcome the effects of structural movement: settlement, expansion, or contraction. However, this method of installation requires a total thickness of at least 3 inches, necessitating a ¼-inch bed of sand to prevent bonding to the structural slab, a sheet of kraft or tar paper covering, a 2-⅛-inch thick mortar underbed reinforced with wire mesh and finally a ⅝-inch terrazzo topping. This installation method although effective, is more costly and does make the designer with a limited budget think twice before using terrazzo.

In seeking solutions toward minimizing, localizing, or eliminating cracking of terrazzo floors it was learned insofar as this investigation could disclose, that extensive research into proper methods of constructing terrazzo floors had not been undertaken by any governmental agency or building research institute. The consensus is that the cracking of terrazzo floors is usually due to structural deficiences rather than because of poor composition or placing of terrazzo itself. From the information received and analyzed, it would appear that a horizontal-cleavage plane is necessary to separate the terrazzo flooring from the structural-concrete slab and so preclude the transferring of structural stresses from the building into the terrazzo flooring.

A third method of laying terrazzo floors over concrete, supplementing the two standard methods adopted by the National Terrazzo and Mosaic Association was suggested by one of the federal agencies contacted and is offered as a means of reducing cracking in terrazzo floors to a minimum without undue cost.



PAPER CLEAVAGE PLANE OVER CONCRETE

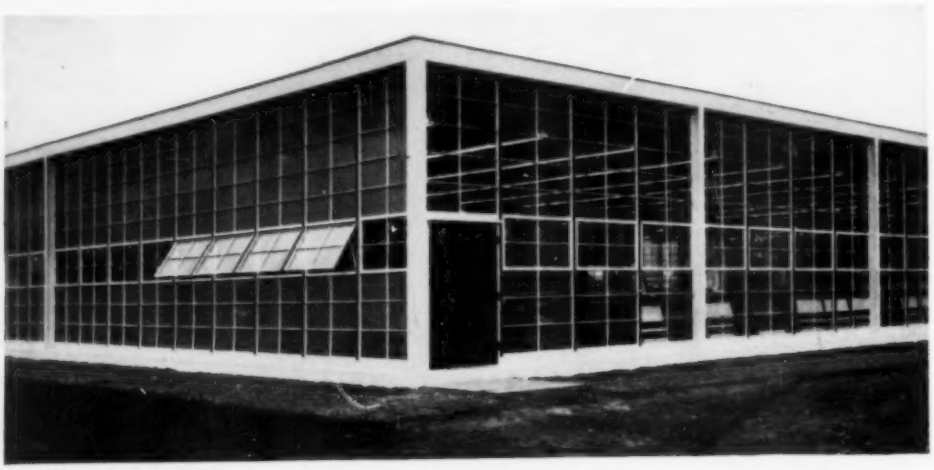
This method provides for a total thickness of only 2 inches with a reinforced, waterproof, building paper serving as a medium to separate the terrazzo from the structural concrete slab. This type of installation is not much costlier than the method used when the terrazzo mortar underbed is bonded directly to the structural concrete slab. However, it affords additional protection from minor settlement, expansion, or contraction. Very good results have been obtained using this type of installation. Another benefit which accrues indirectly is the possibility of removing bad panels easily, since there is no bond to the structural slab.

Of additional interest to the architect using terrazzo is the type of marble chip to be used. Marbles of different species have been found to possess varying degrees of abrasive resistence. This characteristic is important in selecting a marble chip for use in floors subjected to heavy traffic, since this projected use will cause marbles having a low abrasive resistance to wear away more quickly than those with a higher rating. The National Bureau of Standards in *B. M. & S. Report 98, Physical Properties of Terrazzo Aggregates*, concludes that "aggregates having abrasive resistance values of 18 or higher are considered to be suitable for the most severe conditions of foot traffic." The BM&S report lists the abrasive hardness of the various marbles. Marble chips for use in terrazzo subjected to heavy traffic should be specified to have an abrasive hardness of not less than 18 (Kessler Method).

Another operation to be considered in the installation of terrazzo floors is the surfacing or grinding after curing. While the Standard Specifications of the National Terrazzo and Mosaic Association call for an initial rubbing after curing, it does not indicate whether the grinding should be performed wet or dry. Dry grinding creates dust, permitting scratching of the marble chips and possible dislodging of the surface aggregate. By specifying that the terrazzo surface be wetground, the dust is reduced to a minimum, scratching of the marble chips is less likely to occur and the possibility of dislodging of the marble aggregate is reduced. Wet grinding will cause the contractor to provide a certain amount of additional protection to safeguard adjacent walls, floors, and other work from rubbing stones and splashing, while grinding is in progress.

p/a selected detail

window wall



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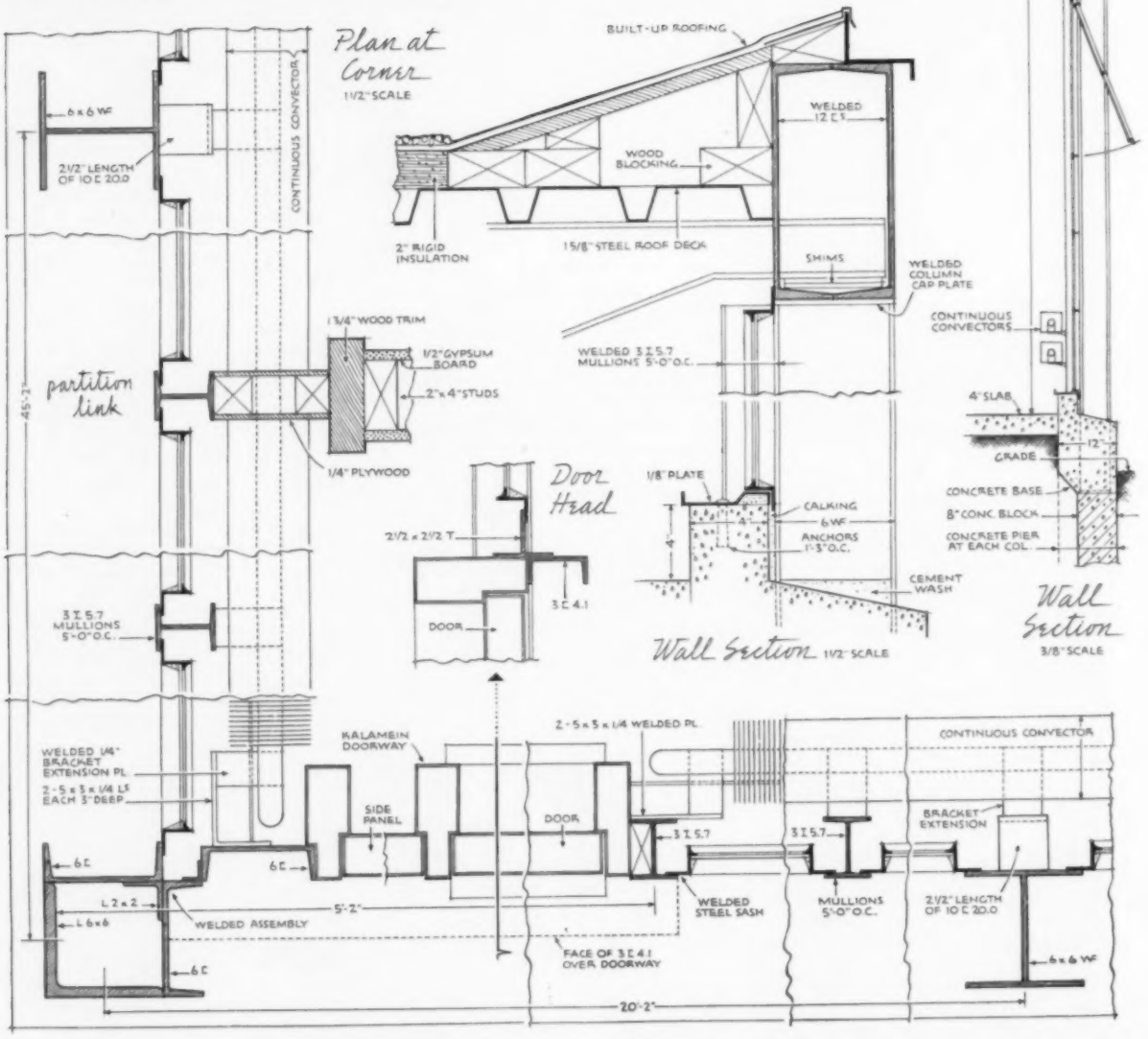
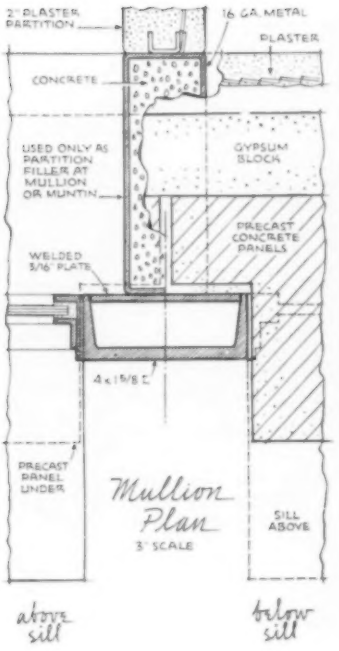


ARCHITECTS' OFFICE BUILDING, Toronto, Canada

John B. Parkin & Associates, Architects-Engineers

window wall



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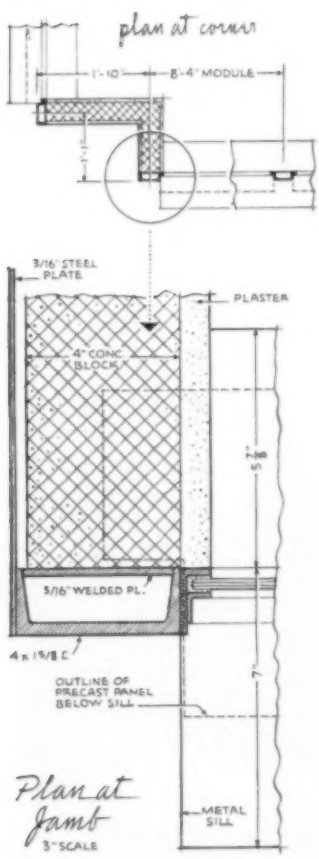

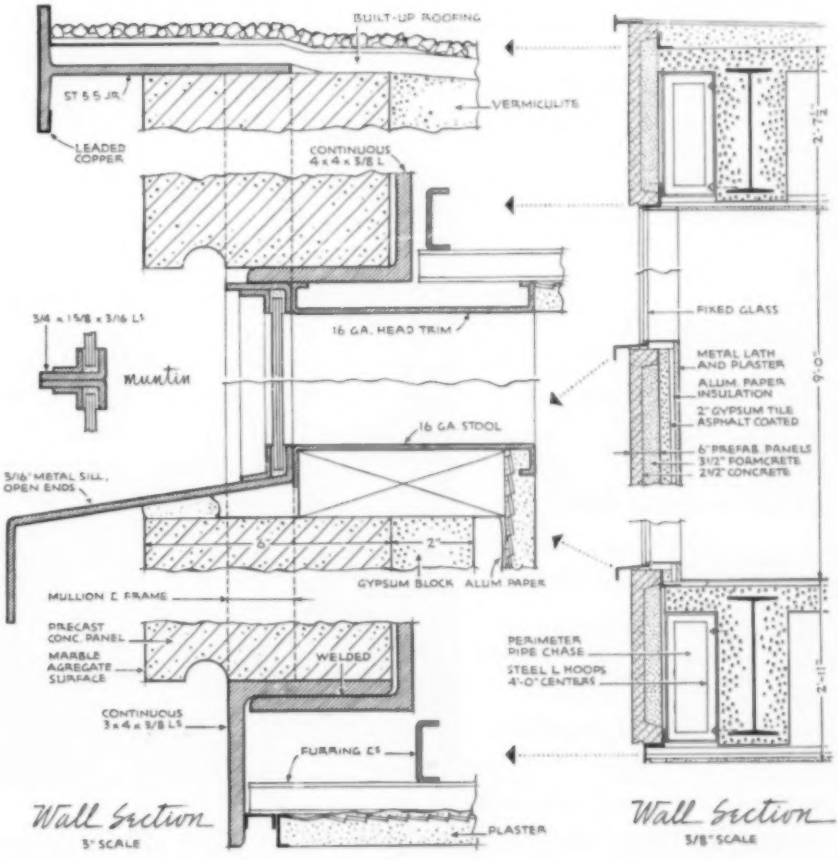

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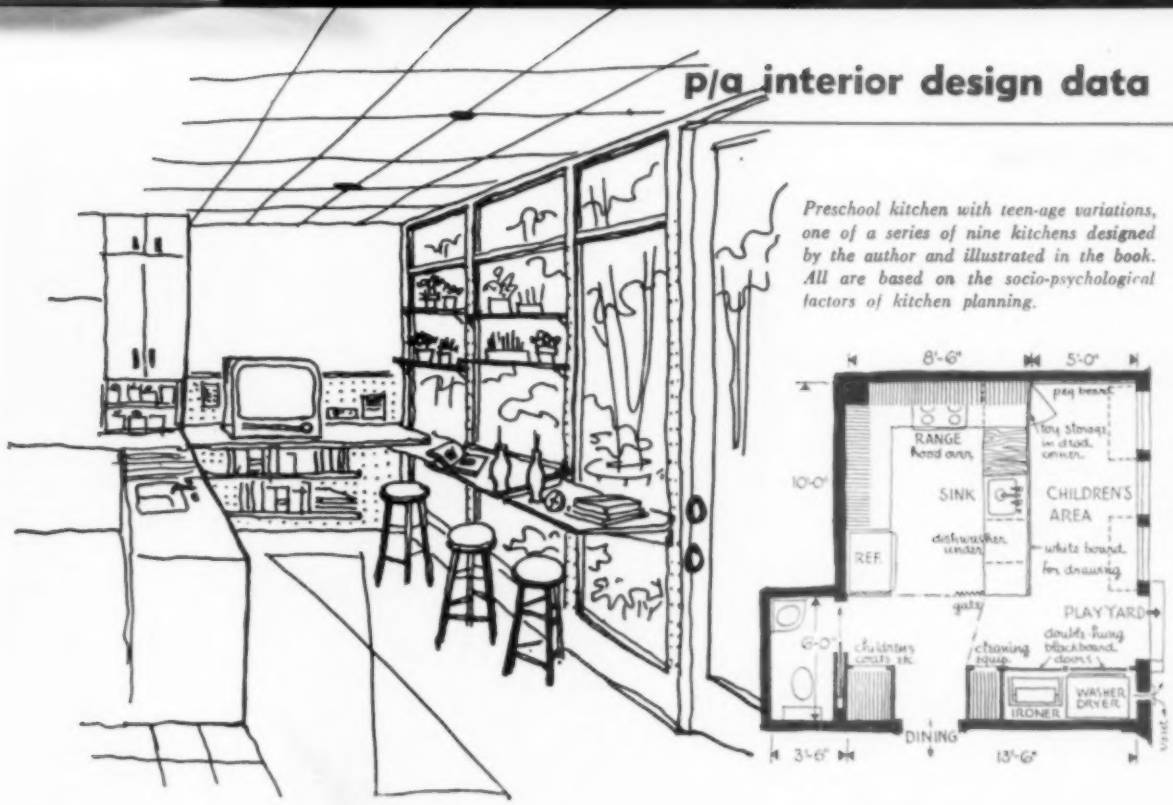


Preschool kitchen with teen-age variations, one of a series of nine kitchens designed by the author and illustrated in the book. All are based on the socio-psychological factors of kitchen planning.

Louise Sloane **kitchens**

Because we feel that one new book written primarily for the consumer also offers unique material and a fresh viewpoint to the architect, we have used it as the basis for this month's IDD presentation. The book is *How to Choose, Plan, Equip and Decorate Kitchens* by Virginia Hart Wheeler, with illustrations by Helen Schiavo (Abelard-Schuman, Inc., New York, N. Y.). The author's unusual background (trained domestic architect, long-time kitchen planner, author of a kitchen handbook for the trade, consultant to appliance and equipment manufacturers, *House & Garden* Kitchen Planning and Equipment Editor, and experienced manager of her own family kitchen) is reflected in the book's contents and its approach.

Excellently illustrated, the book contains a folio of forty-three photographs of outstanding kitchens from which we show six on the following pages, designed by Oscar Stonorov, Satterlee & Smith, Twitchell & Rudolph, Greta Magnusson Grossman, John Storrs, and Marcel Breuer.

There is much that is soundly constructive in the book's section on kitchen-planning principles, and much that is research-time-saving in the section on choosing equipment, which is in itself a handbook of all types of new equipment, described in detail with relative costs, advantages and disadvantages, installation problems. An accompanying source list provides manufacturers' names and addresses. At the risk of sounding "chauvinistic," we feel the urge to recommend to the architect that he seize this opportunity to evaluate that woman's domain—the kitchen—from a woman's point of view.

kitchens

Prototype of the "living/dining/kitchen," this excellent example places the kitchen area out of full view of both the dining table and the formal living space; uses finishing materials that blend with the fine paintings and collector's pieces that are a part of the owner's life; provides the kitchen area with maximum work-convenience although appliances are skilfully concealed. Cabinets are in natural woods, ceiling is painted dove-gray, floor is red quarry tile. Stonorov calls this "the kitchen where you can cook in evening clothes." Within the custom cabinetwork are wall oven (recessed behind open shelves), refrigerator (behind hinged wood door), hot and cold cooking surfaces (recessed in extended counter).

Photos: C. V. D. Hubbard

location | Charlestown Township, Pennsylvania

architect | Oscar Stonorov

In a one-room weekend house, the kitchen is self-contained in one compact divider unit housing an under-counter refrigerator, dishwasher, range, storage cabinets, large sink, and providing good working or serving counter space. Full-length curtains may be drawn for further separation from the other areas. Color plan sets vivid turquoise, terra cotta, navy blue, and yellow against natural woods and a light gray floor.

Photos: Rodney McCay Morgan

data

equipment

Range: Hotpoint Co., 5600 W. Taylor St., Chicago 44, Ill.

Refrigerator: General Electric Co., 310 W. Liberty, Louisville, Ky.

flooring

Asphalt Tile: Kentile, Inc., 58 Second Ave., Brooklyn, N. Y.

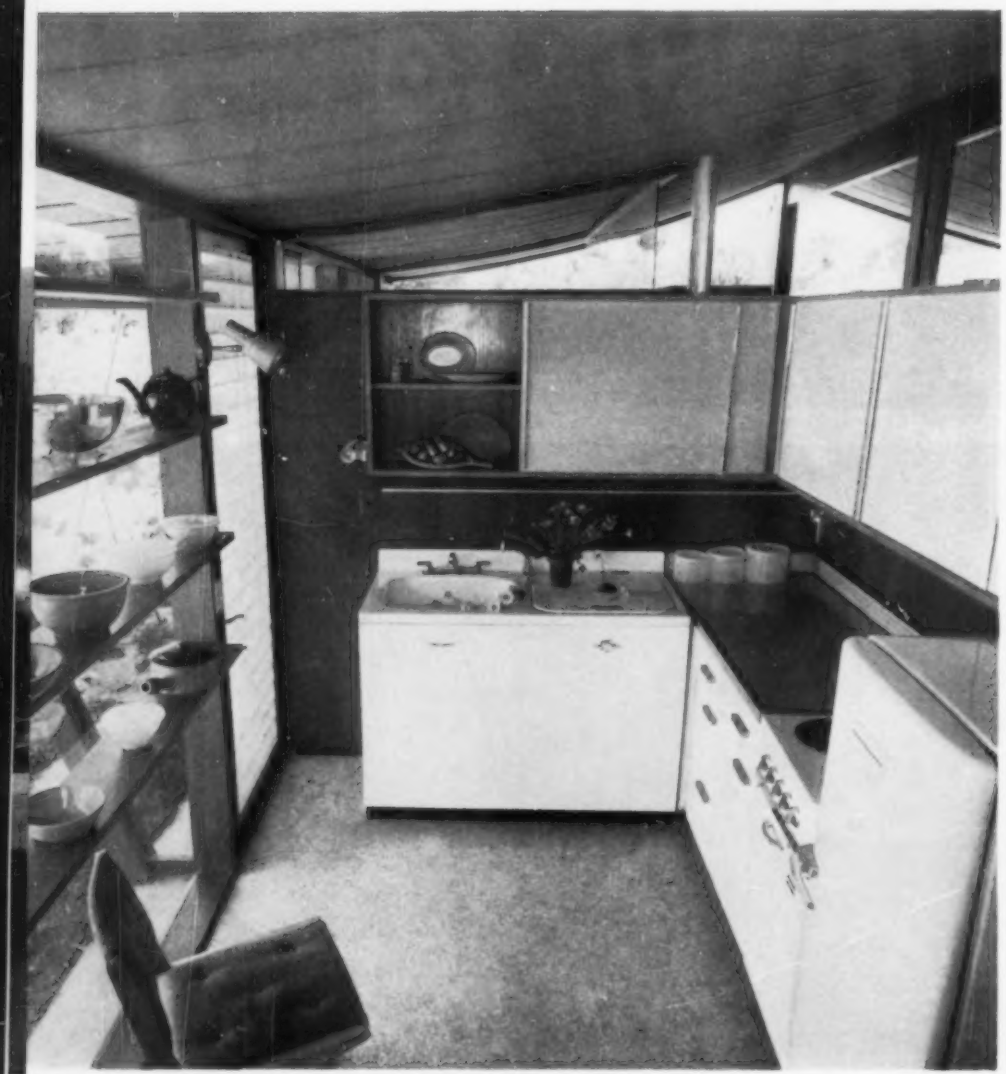
location | Fairfax County, Virginia

architects | Satterlee & Smith

kitchens

Agreeable and workable solution for a minimum kitchen with appliances (including a dishwasher) well arranged, and adequate counter and cabinet space. The very small kitchen has been given a sense of spaciousness by the introduction of a floor-to-ceiling glass wall, and by establishing the plywood partitions free of the ceiling structure. Floor is sand-colored terrazzo, the color repeated in canisters and lamp; fixtures are white; walls are natural birch; turquoise is introduced in ceiling and upper cabinets.

Photo: Rodney McCay Morgan



data

windows

All: "Pro-tect-you" jalousies with 1/4" plate glass/Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh, Pa.

equipment

All: General Electric Co., 310 W. Liberty, Louisville, Ky.

lighting

Brackets, Fluorescent Tubes: General Lighting Co., 1527 Charlotte St., New York, N. Y.

location | Siesta Key, Florida

architects | Twitchell & Rudolph

A professional designer designs her own kitchen—and the result is a look of warmth with a plan of great efficiency. On one side is a counter-work area, the corner space below Swedish spice cabinets, a cutting-board. Dropleaf back of divider provides additional work-surface or may be used for eating. Repetition of open kitchen's natural-wood surfaces and black asphalt-tile flooring in adjoining dining space blends the two areas. Cabinets are natural birch, walls are elm and redwood burl or white sand-finish plaster, counter tops are gray.

Photos: Julius Shulman

data

cabinets, furniture

All: designed by Greta M. Grossman.

equipment

Counter Tops: The Formica Co., 4615 Spring Grove Ave., Cincinnati, Ohio.

Oven, Cooking Tops: "Thermador"/ A. J. Lindemann & Hoverson Co., Milwaukee, Wis.

location | Beverly Hills, California

designer | Greta Magnusson Grossman

kitchens

data

equipment

Counter Tops: The Formica Co., 4615 Spring Grove Ave., Cincinnati, Ohio.

Dishwasher, Refrigerator, Washer, Drier: General Electric Co., 310 W. Liberty, Louisville, Ky.

Ovens, Range Tops: "Thermador"/ A. J. Lindemann & Hoverson Co., 601 W. Cleveland Ave., Milwaukee, Wis.

Sink: stainless-steel/Elkay Mfg. Co., 1874 S. 54 Ave., Cicero, Ill.

lighting

All: indirect-incandescent in tops of cabinets/"Lumiline" under upper cabinets/General Electric Co., Schenectady, N. Y.

location | Portland, Oregon

architect | John Storrs

"In-line" arrangement, open space, view to court and through to breakfast room, work-surface that doubles as a desk—all contribute to a simple but successful layout. Cabinet height matches height of all other built-ins in the house, an interesting point in view of the fact that the only full wall, higher than 7', is the one around the bathroom. Neutral color plan (all natural except for green counter-tops and between-cabinet wall) was deliberately chosen as a monochromatic background for owner's Japanese possessions. Floor is cork, cabinets are birch; walls and ceilings are cedar. Photo: Chas. R. Pearson

This kitchen is the central point of the house, not only in its location but also in its active place in the owner's life. This is clearly reflected in the easy convenience of the open shelving; the doorless passageways to dining room and utility room (combination deep-freeze storage laundry area); accessibility from both sides of the counter between kitchen and dining room. Sharing the open view, it serves both indoor and outdoor meals, and is amply provided with work surfaces and sit-down work space. White-painted walls and shelving are in fresh contrast with the ceiling of natural-color untreated cypress boarding, oiled teakwood counters, split-surface bluestone random flooring.

Photo: Ben Schnall

data

equipment

Range: Universal Electric Appliance Inc., Box 119, Lima, Ohio.

Dishwasher: Hotpoint Co., 5600 W. Taylor St., Chicago 44, Ill.

Dryer: Whirlpool-Seeger Corp., St. Joseph, Mich.

Refrigerator, Freezer: Crosley & Bendix Home Appliances, Div. AVCO Mfg. Corp., Cincinnati, Ohio.

Washing Machine: Crosley & Bendix Home Appliances.

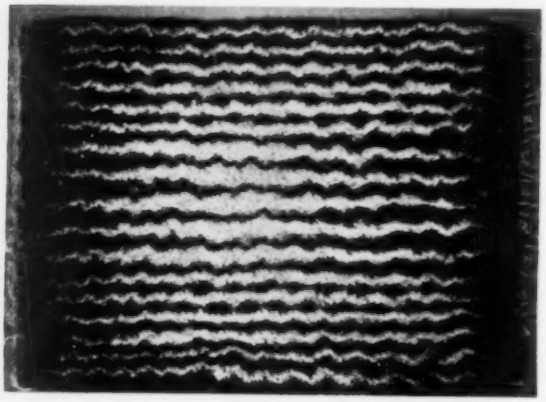
location | New Canaan, Connecticut

architect | Marcel Breuer

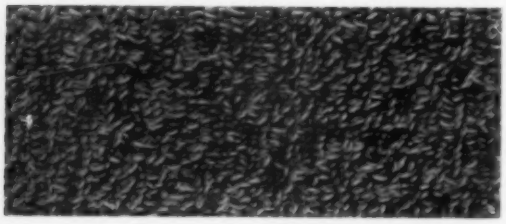
p/a interior design products

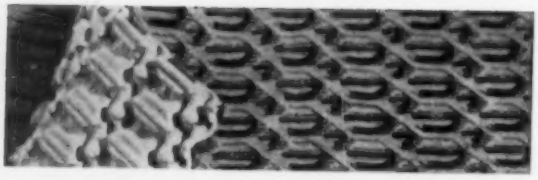
Cotton Rug: "Checker"/ tufted cotton/ alternating blocks of looped pile and low-cut pile/ available in room-area sizes/ 17 colors/ sizes range from 2'x38" to 12'x15'/ **retail:** $9.95 sq yd/ **Needletuft Rug Mills Division of Cabin Crafts, Dalton, Ga.**

Handwoven Rug: one of collection of tribal rugs from Morocco/ all are different in design/ made entirely by hand/ homespun wool/ colors achieved by natural dyes/ resistant to water and light/ Beni Quaraine tribal rug with 3" pile/ black with irregular zebralike stripes in white/ 9'2" x 6'9"/ **retail:** $1125.00/ **Mauretania Fabrics, Inc., 140 E. 56 Street, New York, N.Y.**



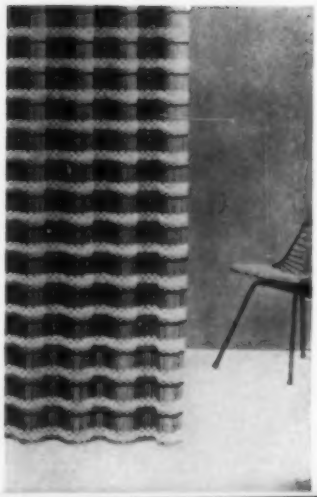
Textured Carpeting: "Tam O' Shanter"/ solution-dyed tufted rayon in tweedy texture/ "Solarized" for color fastness/ latex-back/ available in tweed combinations of white, tan, and brown; brown, green, and white; black, white, and green; black, white, and gray; white, light nutria, and dark nutria/ 12' and 15' widths/ **retail:** $6.95 per sq yd/ **C. H. Masland & Sons, Spring Road, Carlisle, Pa.**





Carpet Underlay: "U.S. Airlane"/ 1/4"-thick/ sponge rubber design on underside anchors it securely to floor/ strong fiber backing/ 53" wide/ natural cream color/ **retail:** $1.75 sq yd/ **U.S. Rubber Co., Rockefeller Center, New York 20, N.Y.**

Movable Wall: "Tahoe" by Tropicraft of California/ woven of wheat- or oak-finished slats with beige, brown, gold chenille, and metallic braids/ **retail:** approximately $106 for 6'x8' size/ **Isabel Scott Fabrics Corp., 515 Madison Ave., New York, N.Y.**



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Architects: C. B. Alford & W. J. Thomas
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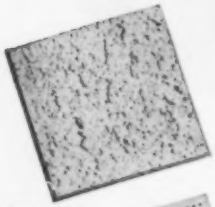
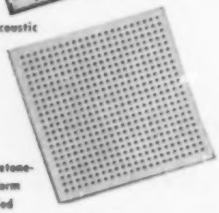
The handsome, efficient Johns-Manville Sanacoustic ceiling in this Ohio Fuel Company office in Columbus, Ohio, muffles the noise of business machines. Architects: Karlsberger, McClellan & Gallogly, Columbus, Ohio.

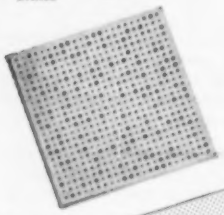
In new buildings or old—Specify Johns-Manville Acoustical Materials for maximum Quiet



Permacoustic



Fibretone-Uniform Drilled



Fibretone-Variety Drilled

Sanacoustic

In almost all new building and modernization specifications, architects and builders all over the country are including acoustical materials in their plans to reduce disturbing noise.

Johns-Manville offers a complete choice of highly efficient sound-absorbing materials for every acoustical need.

- **J-M Permacoustic® Units**—combine maximum acoustical efficiency with architectural beauty. Have attractive fissured surface. Made of mineral wool, Permacoustic meets all building code fire-safety requirements.
- **J-M Fibretone® Units** – provide high acoustical efficiency at modest cost. Hundreds of small holes, drilled in a Uniform or Variety pattern, act as "noise traps." Fibretone has a white paint finish. Available with flame-resistant finish.
- **J-M Sanacoustic® Units**—perforated metal panels backed with a fireproof, highly sound-absorbent element. Noncombustible and sanitary. The white baked-enamel finish is easy to keep clean and may be repainted.
- **J-M Transite® Acoustical Panels** – perforated asbestos-cement facings backed with a mineral wool sound-absorbing element. Noncombustible. Suitable in areas with high humidity (dishwashing rooms, kitchens, swimming pools, etc.).

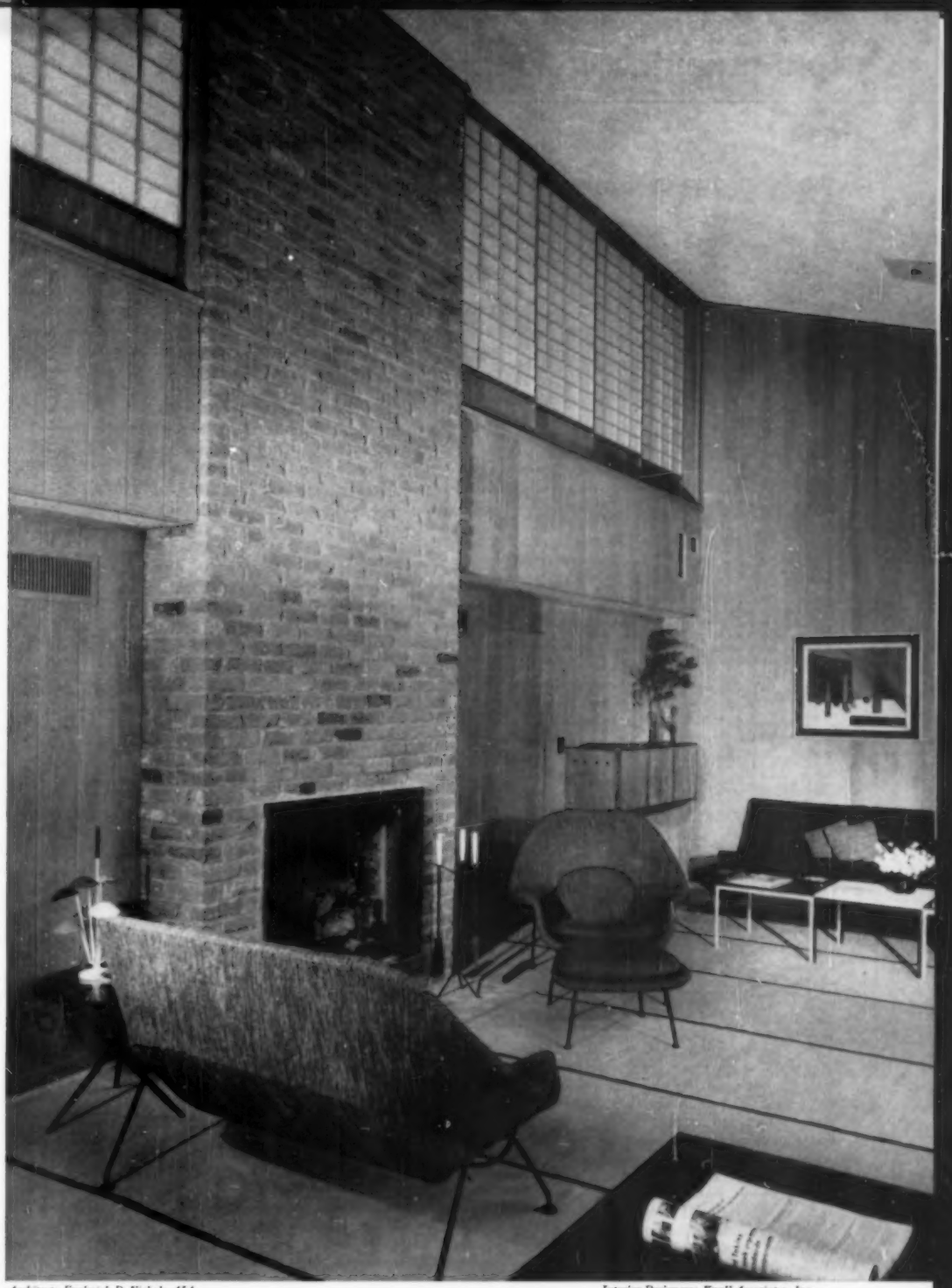
Send for your free copy of the new brochure entitled "Sound Control." Write Johns-Manville, Box 158, Dept. PA, New York 16, N.Y. In Canada, write 565 Lakeshore Road East, Port Credit, Ontario.

JOHNS MANVILLE JM PRODUCTS

See "MEET THE PRESS" on NBC-TV, sponsored alternate Sundays by Johns-Manville

Johns-Manville

45 years of leadership in the manufacture of acoustical materials



Architect: Frederick D. Nichols, AIA *Interior Designers: Knoll Associates, Inc.*

"Inside story" of redwood. The natural characteristics that make California redwood so desirable for exterior work—high dimensional stability and beauty of grain, color and texture—make it equally effective inside the home.

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p/a manufacturers' literature

In recent years, there have been numerous superficial improvements in air-conditioning equipment. Appearances changed; operation was automatized; but internal mechanisms were not significantly altered. At last two important developments toward greater economy in system operation have appeared.

The McFarlan Methods, a 12-page bulletin with color-coded flow charts presents means of eliminating certain operating inefficiencies common to air-conditioning systems where cooling demands are high. The solutions are based on the principles that (a) low refrigerant temperatures require larger compressors and (b) high temperature of compressed refrigerants require more powerful condensers. Detail analyses explain how the McFarlan staged cycle, wide-coil compressive system, and three-pipe reverse cycle condensing units, reduce percentage of wasted horsepower and consequently, lower operating costs.

Copies of the McFarlan method, 12-pp., are available from the A. I. McFarlan Co., Inc., 90 West St., New York 6, N. Y. R. C.

Editor's Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.

air and temperature control

173. Multi-Vent Trofferlite, 8-p. bulletin announcing combination air-conditioning/lighting fixture for installation in any drop-type ceiling. Discusses practical features such as vertical air diffusion which eliminates dirt-smudged ceilings. Shows installation procedure, resulting in simple uncluttered appearance. Presents louvered, baffled, and open-type troffers. Graphs, charts, and diagrams. Benjamin Electric Mfg. Co., Des Plaines, Ill., or Pyle-National Co., Chicago 51, Ill.

174. Pacific Steel Boilers, AIA 30-C-1, 44-p. catalog covering residential/commercial, automatic, or hand-fired steel boilers, comprised of two dissociable parts (shell and firebox) to permit delivery through doors or windows. Presents low-waterline, high-firebox, wet-back, and front-smoke outlet boilers, fired by gas, coal, or oil. Also reviews: hot water supply and storage tanks; induced draft fans; heating coils. Detail data, description, dimensioned drawings, photos of all units. Pacific Steel Boiler Div., Johnstown, Pa.

175. Packaged Cooling Towers, 12-p. tab-indexed booklet introducing series of packaged cooling towers with centrifugal blower (vertical-induced draft), propeller fan (horizontal-induced draft), or louvers (natural draft). Describes and illustrates design features; provides technical data. Dover Mfg. Co., 3117 Weatherford Ave., Independence, Mo.

176. Perimeter Piping Systems for Forced-Hot-Water Heating, 600-E1A, 24-p. guide to selection and design of perimeter piping systems for forced hot-water heating with classroom unit ventilators and matching convectors. Illustrated, indexed sections give comprehensive coverage of systems in various locations and demonstrate application of individual elements; schematic piping diagrams suggest arrangements for direct- and reverse-return systems. Herman Nelson Products, American Air Filter Co., Inc., Louisville, Ky.

177. Acme Evaporative Condensers, 8-p. file folder presenting data on heavy-gauge steel-enclosed evaporative condensers, with centrifugal-type blowers, designed to conserve water and provide high-cooling capacities required for institutional air conditioning. Describes special features; tabulates dimensions and cfm ratings of copper-coil and steel-pipe-coil units as well as selection data for units using freon or ammonia refrigerant. Acme Industries, Inc., Jackson, Mich.

178. Electrend, AIA 31-K-3, 4-p. data sheet describing electric forced-air residential heating system using vertically-installed metal ducts which draw air through ceiling-level grilles and distribute temperature-controlled air through outlet near floor. Drawings show single and dual-room units with integral thermostat, built into standard interior partitions. Photos, specifications. Electrend Products Corp., St. Joseph, Mich.

179. Drayer-Hanson Cooling Tower, 4-p. leaflet giving data for selection of cooling towers, adaptable to any type of refrigeration equipment. Outlines procedure for selection, based on normal design wet-bulb temperature. Includes capacity, temperature, and water flow tables for 13 models handling from 1,500 cfm to 24,000 cfm. Additional table supplies dimensions of units and components shown in diagram. Drayer-Hanson, 3301 Medford St., Los Angeles 63, Calif.

180. Auto-Airmat Air Filter (234-C), 8-p. bulletin on automatic dry-type air filter. Explains industrial application where lint, dust, and ink mist are prevalent. Describes disposal action, installation, and operating characteristics; outlines separate components. Chart of dimensions and capacities; graph of media resistance to air velocities; dimensioned drawings of unit. American Air Filter Co., Inc., Louisville 8, Ky.

181. Kno-Draft "Architects' Group" Diffusers (K-27), 12-p. catalog featuring line of square and slotted air diffusers. Illustrates three types of square diffusers designed to give precise circular diffusion patterns over large area; shows two rectangular slotted diffusers—for one-directional or multidirectional flow—developed to give good diffusion characteristics. Presents instructions for selecting proper unit, including dimensioned drawings and performance charts for each model. Photos of typical installations; charts. Connor Engineering Corp., Danbury, Conn.

construction

246. Oatey Roof Flashing, 8-p. publication showing various kinds of pipe flashing for installation on flat roofs and roofs tilted at any angle up to 45 degrees. Includes one-piece base and sleeve unit of cast lead, copper, aluminum, or galvanized iron. Also, tailor-made flashing with one joint, designed to fit unusual conditions. Provides specifications and ordering data. The L. R. Oatey Co., 10230 Berea Rd., Cleveland 2, Ohio.

247. Asbestos Transitop, AIA 19-D, 36-p. guide demonstrating use of fire-resistant insulating-structural panel for: curtain-wall construction over steel or wood framing; roof decks; interior walls. Numerous isometric drawings and details show steel and panels joined by clip & bolt, screw, welded stud, and other fasteners; panel-purlin installations with nails or roof-deck clips; partitions constructed with metal mouldings, wood battens and dowels; panels installed between framing as well as exterior application of corrugated transite. Provides design data and specifications for painting. Johns-Manville, 22 E. 40 St., New York 16, N. Y.

248. Nova Building Products, 68-p. pocket-size building manual, counterpart

to earlier Nova handbook, describes variety of products from concrete mix to shakes and their applications. Presents data on pouring foundations, waterproofing concrete slabs, repairing defective masonry, installing pre-framed jalousies, and applying shakes to sidewalls with special clip attachment. Provides tabular guides, drawings and details. Nova Sales Co., Trenton 3, N. J.

Plywood Design, AIA 19-F, 30-p. loose leaf portfolio presenting designs to stress versatility of fir plywood. Four-color illustrations with comments and details demonstrate possibilities—economical structural wall and roof system is formed by random sized plywood panels and glass locked between rabbeted posts; kitchen layout is comprised of built-in units framed by glass. Other renderings show garden enclosures, interior furnishings, and purely decorative elements. Emphasis on oriental simplicity and geometric forms. Free to architects requesting on firm letterheads. Douglas Fir Plywood Assoc., Tacoma 2, Wash.

249. Chemical Finishing of Metals, 16-p. pamphlet explaining electrochemical coatings. Describes how aluminum and steel can be coated to give appearance of more expensive metals; tells how special properties can be added to metal surfaces. Also gives data on phosphate coatings and black oxides for steel, as well as protective coatings for magnesium. J. W. Rex Co., 834 W. Third St., Lansdale, Pa.

250. 1956 Grading Rules for Southern Pine Lumber, 172-p. pocket-size handbook of revised grading rules for southern pine, effective June 1, 1956. Of interest to architects are: new all-purpose stress grades; stress ratings for all widths and thicknesses of lumber; mandatory seasoning provisions; higher stresses for lumber with low moisture content; new data on paneling; and better finishing grades. Also includes information on characteristics and properties of southern pine; gives table of average weights of lumber. Southern Pine Inspection Bureau, P. O. Box 1170, New Orleans, La.

251. Modern Construction Through Engineering in Wood, AIA 19-B-3 (TSG-15), 16-p. catalog illustrating use of glue-laminated wood members in schools, churches, homes, and commercial buildings. Gives typical haunch sections for tudor arches and outlines design procedure; also provides sections for constant-radius arches, glue-laminated beams, and purlins. Includes data on timber roof deck which combines properties of sheathing, insulation, and finished ceiling. Specifications; information on factory-stained color finishes for glue-laminated structural members. Timber Structures, Inc., P. O. Box 3782, Portland, Ore.

252. Vermiculite Specifications, AIA 21-A-5 (39-B), 12-p. booklet of specifications for vermiculite plaster and acoustical plastic revised according to new provisions of American Standards Association. Additional and revised sections include specifications for machine application of both products. Vermiculite Institute, 208 S. La Salle St., Chicago 4, Ill.

253. Porcelain Enamel in Architecture: Part I—Veneer-Type Construction, AIA 15-H-2, 24-p. design manual for porcelain-enameled steel and aluminum veneer panels. Discusses how and where to use porcelain enamel on exterior walls, exterior trim, special details, and interior surfaces; includes typical details as well as photos for each type of installation. Design-data section gives information on colors, finishes, and fabrication of panels, back-up materials, and attachment methods. Specifications. Architectural Div., Porcelain Enamel Inst., 1145 19th St., N.W., Washington, D. C.

doors and windows

384. Sliding Door Hardware, 8-p. catalog brochure presenting line of packaged sliding door hardware using special top-mounted hanger design that permits $\frac{3}{8}$" vertical adjustment without disturbing installation screws. Points out consruction features such as: built-in header; nylon floor guide; permanently-lubricated nylon rollers. Shows hardware trim and accessories. Tables of ordering data. The Stanley Works, New Britain, Conn.

electrical equipment, lighting

467. Church Lighting, 8-p. brochure showing lighting fixtures for contemporary and traditional churches. Features ornamental, pendant and wall-mounted lanterns to harmonize with existing Gothic, Colonial, or Georgian interiors; simple, contour-form fixtures to complement modern interiors; recessed reflectors for auditorium-type spaces where inconspicuous, high-intensity lighting is desirable. Photos of actual installations. Pittsburgh Reflector Co., Oliver Bldg., Pittsburgh, Pa.

468. Exit Lights, AIA 31-F-2, 4-p. catalog sheet introducing line of recessed- and surface-mounted exit lights with up-swinging face door for easy access. Shows glass and stencil-face models mounted flush to wall, adjacent to wall or ceiling, and with pendant attachment. Includes table of ordering data, list of features. Curtis Lighting, Inc., 6135 W. 65 St., Chicago 38, Ill.

Low-Brightness Lens Panel, AIA-31-F-237, 6-p.

Alba-Lite in Flat Panels, AIA-31-F-237, 6-p.

Crystal-Lite, AIA-31-F-237, 6-p. Three file folders providing illustrated technical data, and describing features of light diffusing panels for installation in two, three, or four-lamp fluorescent troffers. First folder shows lightweight panels with pattern of six-sided pyramidal projecions for brightness reduction. Second folder covers translucent opal-glass panel with plain, pebbled, ribbed, or fluted surface for high light transmission. Third one introduces clear transparent-glass panels with linear prismatic flutes for 12" and 24" troffers in large-area, general lighting applications. Request from Corning Glass Works, Corning, N. Y.

469. Architectural Floodlighting, 8-p.

470. Modern Outdoor Lighting, 12-p. Two bulletins dealing with exterior lighting applications illustrate numerous examples. Dramatic effects of highlighting building forms and surfaces are shown in first booklet, which provides suggestions for selection and location of floodlights; recommends footcandle levels for particular surface materials. Second bulletin serves as guide for planning attractive lighting installations in parking areas around shopping centers or surburban businesses. Discusses costs, requirements, appearance. Shows luminaire designs and accessories. General Electric, Schenectady 5, N. Y.

finishers and protectors

516. Why Hot Spray, 28-p. pocket-size booklet outlining advantages of hot spray process which claims growing industrial acceptance. Introductory data defines hot spray as method of applying controlled heat to finish materials to maintain constant viscosity. Actual case histories are related; spray equipment is illustrated. Final section, in question/answer form, gives realistic appraisal of potential uses

(Continued on page 158)

PROGRESSIVE ARCHITECTURE, 430 Park Avenue, New York 22, N. Y.

I should like a copy of each piece of Manufacturers' Literature circled. We request students to send their inquiries directly to the manufacturers.

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174	247	468	727
175	248	469	728
176	249	470	729
177	250	516	836
178	251	517	837
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181	384	725	

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Position

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Mailing Address

City *State*

Coupon must be used by 2/1/57.

p/a manufacturers' literature

(Continued from page 157)

and limitations of process. Photos, drawings, graphs. Spee-Flo Co., 720 Polk, Houston, Tex.

517. Polyken Protective Coatings, 24-p. booklet containing information on polyethylene-backed tape coatings for protecting pipes, cables, and conduits from deleterious effects of corrosive agents. Discusses origin, development, and actual applications of product. Photos show use of power-driven tape wrapping machine in coating an entire gas-distribution system. Provides cost analysis and detailed specification; outlines typical application procedure, using explanatory drawings. Table of physical properties; pipe covering data. The Kendall Co., 22 W. Adams St., Chicago 6, Ill.

insulation (thermal, acoustical)

629. Duct Insulation, 4-p. brochure discussing advantages and application of spun mineral-wool boards for thermal insulation and sound absorption in air conditioning or heating ducts. Describes three varieties of insulation board (plain; with factory-applied vapor barrier; with neoprene coating) available in semi-rigid sheets that are clipped, screwed, taped, or wired over exterior of ducts. Application techniques are illustrated. Baldwin-Hill Co., Trenton, N. J.

630. Shock and Vibration Control, ★ 4-p. report reviewing basic principles of vibration isolation and shock absorption, with suggestions for their practical application. Classifies vibrations according to origin, which may be directly from machine or indirectly through foundations and walls. Provides formulas and graphs for determining individual problems. T. R. Finn & Co., Inc., 200 Central Ave., Hawthorne, N. J.

sanitation, plumbing, water supply

725. Wrought-Iron Pipe, AIA 29-B-2, 16-p. pamphlet illustrating numerous contemporary buildings where wrought iron —earliest known ferrous metal—is adapted for use as piping in radiant heating, cooling, and sprinkler systems as well as soil lines or pools. Describes physical characteristics and advantages among which native resistance to corrosion and ease of welding are foremost. A. M. Byers Co., Clark Bldg., Pittsburgh 22, Pa.

726. Plumb-Easy Drains, AIA-29-C, ★ 96-p. spiral-bound catalog, tab-indexed in six sections that cover wide assortment of: cast-iron or bronze drains for floors, roofs, and showers; swimming pool fittings; access boxes; hydrants and trap standards; interceptors. Illustrations of each item are accompanied by clearly drawn details, giving full information. Provides installation data for grease interceptors serving commercial sinks and dishwashers; instructions for installing oil interceptor serving multiple floor drains, metal chip bins, trench drains. Jay R. Smith Mfg. Co., Union, N. J.

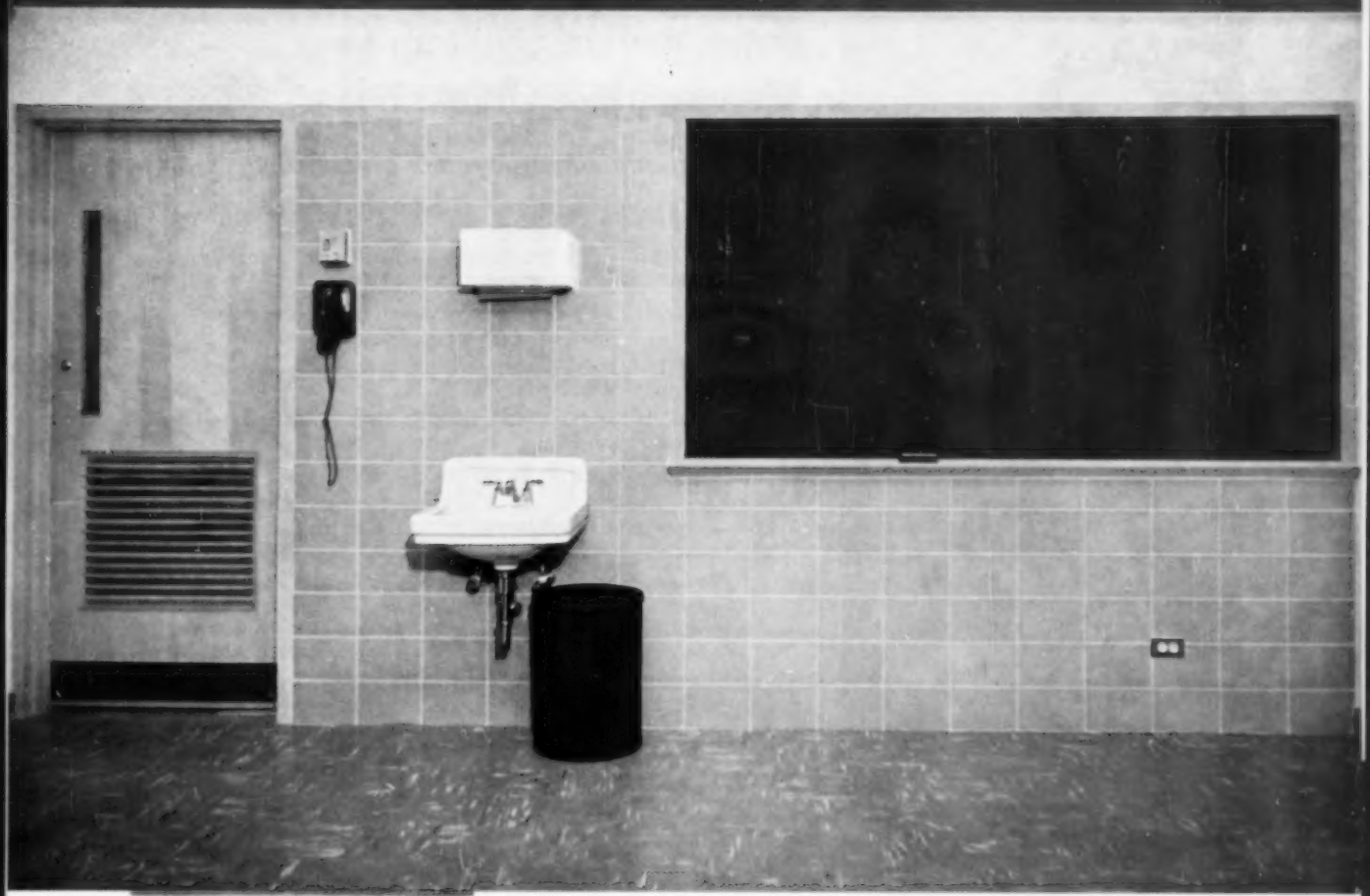
727. Cast-Iron Soil Pipe, 8-p. publication offering standardized measurements for most-commonly-used cast-iron soil pipe and fittings to facilitate specification and insure uniformity in practice. Key diagrammatic drawings of hub and spigot, bends, sweeps, Y and T branches for soil, waste, or vent lines are provided along with tables of uniform weights and dimensions. The Cast Iron Soil Pipe Institute, 1627 K St., N. W., Washington 6, D. C.

728. Modern Swimming Pools, AIA 35-F-2, 52-p. catalog and data book dealing with swimming pool supplies necessary for construction and maintenance. Covers large variety of accessories. Includes sections on chemicals for cleaning or conditioning water and controlling algae. Provides chart for proper selection of filters and introduces buried type for use in limited space; diagrammatic drawings of filters and fittings; special section on maintenance procedures. All items illustrated and described. Modern Swimming Pool Co., Inc., One Holland Ave., White Plains, N. Y.

(Continued on page 162)

specified by State Authority of
Pennsylvania
Eastern Pennsylvania Psychiatric Institute, Philadelphia, Pa.
Architects: Harbeson, Hough, Livingston & Larson and Harry Sternfeld, under supervision of THE GENERAL STATE AUTHORITY Harrisburg, Penna.
This noted project of Pennsylvania's State Authority is but another milestone in the program of public health so typical of the Keystone State. Naturally, we're proud that Halsey Taylor drinking water equipment was specified for this splendidly designed edifice. The Halsey W. Taylor Co., Warren, O.
HALSEY® TAYLOR
Fountains and Coolers
The Favorite Specification

ROMANY *Real Clay* TILES



Northfield High School, Northfield, Minn. Magney Tusler & Setter, Archts., Minneapolis, Minn.

Right: Romany Direct Adhesion Base Tile in all matching colors.

Below: Romany window stools are easily cleaned and they are stain proof.

Romany Tile protects wall surfaces in schools throughout the country. Wide range of fade proof colors.

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BEST PROTECTION FOR "SCUFF" AREAS

It is generally accepted that the minimum zone of damage to wall surfaces extends from floor to 4 feet up. Greater tile protection extending 8 to 10 feet high is ideal, and, depending on local construction costs, it has been found that this extended protection is a negligible factor in the over-all building cost. Because ROMANY Real Clay Tile offers the toughest clay body and glazed surface procurable today, it has extraordinary protection value to meet scuffing, kicking, scraping and other abuses common to school life.

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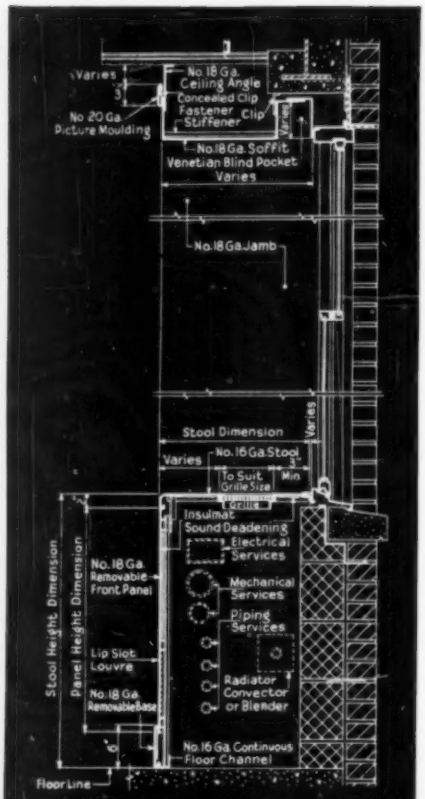

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Milcor Combination Wall Units solve design problem in Westinghouse Research Laboratory

Functional floor-to-ceiling wainscot is complete answer to complex requirements

Wainscoting for the Westinghouse Research Laboratory in Pittsburgh presented several design problems:

1. It had to provide access to electrical and gas connections behind the wainscoting.

2. It had to include removable partition caps, to provide for future partition locations.

3. It had to have removable front panels, for easy maintenance of heating and air conditioning units.

The Milcor Wall Units shown below provided the answer.

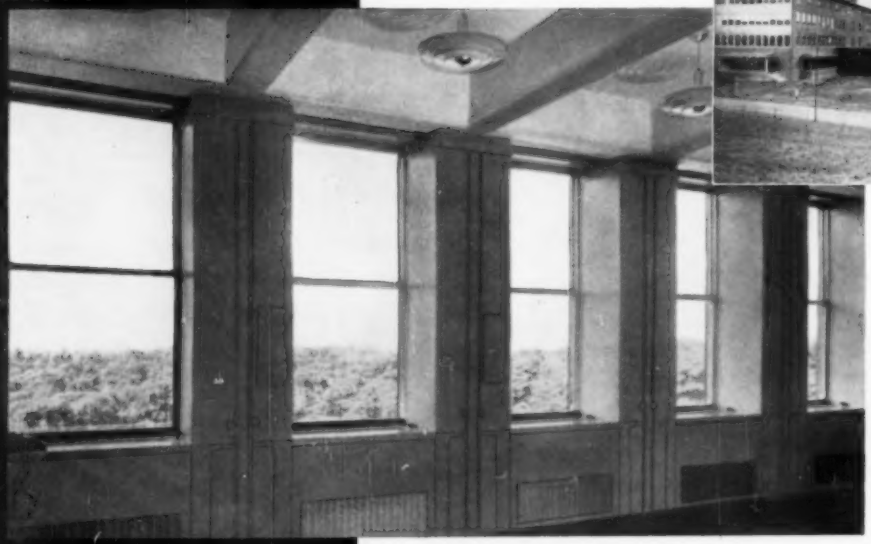
This is a good example of combining window trim and convector enclosures into complete wall units that satisfy individual job situations — at substantial savings in cost.

You can specify Milcor Wall Units in variable dimensions — in either Ti-Co galvanized or regular steel — factory-welded or knocked-down for assembly on the job. One of the Milcor field engineers can help you put Milcor know-how to work on your next job.

For further information, refer to the Milcor pages in Sweet's (Section 12a/InL). Or write for Catalog 102.

MILCOR® Wall Units

Exterior of Westinghouse Research Laboratory, Pittsburgh, Pa.



Close-up of the Milcor Wall Unit installation at Westinghouse Research Laboratory. All units are reinforced and supported by concealed members.

An enamel finish harmonizing with the general interior decorative scheme was baked on at the factory.

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T-105

GENERAL ELECTRIC ANNOUNCES THE MOST SIGNIFICANT DEVELOPMENT IN BALLAST DESIGN SINCE THE INTRODUCTION OF THE CERTIFIED SLIMLINE BALLAST

Important news for:

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- ARCHITECTS
- CONSULTING ENGINEERS
- ELECTRICAL CONTRACTORS

Progress Is Our Most Important Product

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Read about this exclusive G-E ballast design achievement and the complete line of G-E ballasts for slimline applications on the next 3 pages . . .

NEW G-E SHALLOW-HEIGHT BALLAST

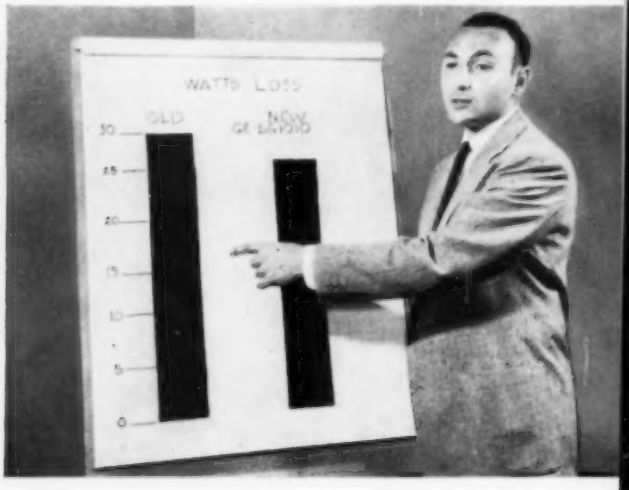
"Three years ago they said it was impossible to design this ballast!"

But General Electric did it. A small group of General Electric Ballast Department engineers accepted the challenge. Result: the G-E 6G1010 shallow-height ballast. This new ballast is smaller, lighter, more efficient and better insulated than any other ballast now available for 430 ma 96T12 slimline two-lamp applications. Moreover, it's the quietest ballast of its rating on the market today.

Electric and magnetic circuit innovations, the solution of heat transfer problems, and more efficient use of material and manufacturing technology helped to make this new design possible.

Dan Lovinger, Project Engineer of the General Electric Ballast Department, was one of those primarily responsible for the successful completion of the new design. In an interview, Mr. Lovinger outlines the features which make the 6G1010 the smallest, quietest, most efficient shallow-height ballast of its kind.

SMALLEST SIZE "The new 6G1010 shallow-height ballast is only $1\frac{23}{32}$" high by $3\frac{1}{8}$" wide—this, we think, is the optimum cross-section—with an over-all length of $11\frac{3}{4}$" and a mounting length of $11\frac{9}{64}$". That's small for a ballast of this type. It means fixture manufacturers and architects gain the ultimate in design freedom. We've reduced the weight of this new ballast, too. But rated light output, starting current and open circuit voltage have all been maintained in accordance with CBM specifications. Engineering innovations, improved manufacturing technology, and more efficient utilization of material made today's General Electric 6G1010 certified ballast possible."

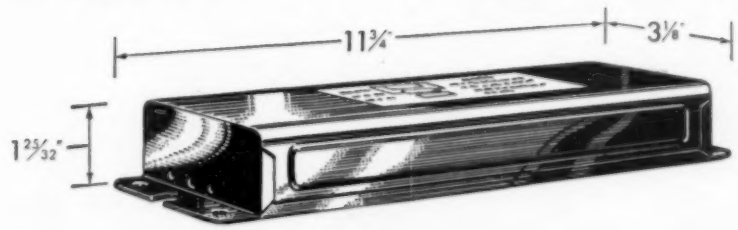


MOST EFFICIENT "Besides being the smallest size, the new 6G1010 ballast is also the most efficient ballast of its type. This high efficiency, achieved through certain design innovations, results in the lowest watts loss and operating temperatures known in the industry for a certified two-lamp 96T12-430 ma ballast. The watts loss value in the 6G1010 is only 26 watts. Because of this reduction in watts loss, we were also able to obtain low operating temperatures. Thus, greater design flexibility is possible for fixture manufacturers and architects which, to the ultimate user, means more efficient, more economical lighting applications. Low operating temperatures mean longer ballast life, too."

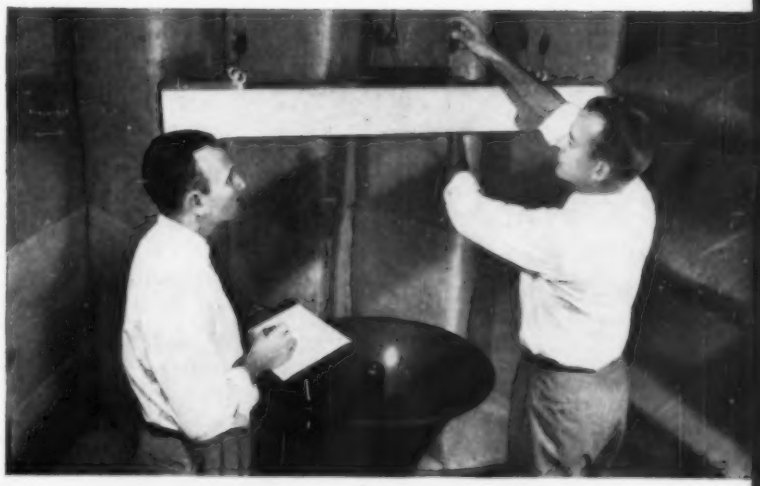
FOR 96T12 TWO-LAMP APPLICATIONS

You get four big advantages with the new General Electric 6G1010 shallow-height ballasts:

1. SMALLEST SIZE
2. MOST EFFICIENT
3. NEW INSULATION
4. QUIETEST OPERATION



GENERAL ELECTRIC



NEW INSULATION "We've also incorporated the best insulation system possible into our new 6G1010 ballast design. This new system includes the replacement of hygroscopic (water absorbing) insulation with Mylar* insulation and the introduction of nylon coated wire. Mylar insulation and nylon coated wire give greater dielectric strength and offer longer life characteristics. We've run field and laboratory tests which show that heat aging characteristics for nylon coated wire are far superior to any class "A" insulated wire for ballast applications. To supplement this excellent insulation system, the core and coil is pressure vacuum treated to give still greater dielectric strength and longer life."

*Registered Trade-mark of the DuPont Co.

QUIETEST OPERATION "The 6G1010 ballast offers the lowest sound rating in the history of two-lamp 96T12-430 ma ballasts under the exclusive G-E sound rating system. This is an extremely important feature and—we feel—a real achievement. The new G-E ballast is rated "C" which is at least one rating better than any two-lamp 96T12 ballast on the market. The developments which made this possible include the three piece core assembly with special push-on clamps, reduced core length, filling of shunt gaps with cement, special coil wedges, and our lift-pour with potting compound. Through these developments, we have been able to control and reduce vibration—the principal noise-causing factor.

WITH THE ADDITION OF THE 6G1010, GENERAL ELECTRIC INTRODUCES THE FIRST

COMPLETE LINE OF SHALLOW-HEIGHT BALLASTS FOR SLIMLINE APPLICATIONS

- **Standard 1-25/32" height allows greater fixture design flexibility**
- **One to four pound weight savings across complete line**

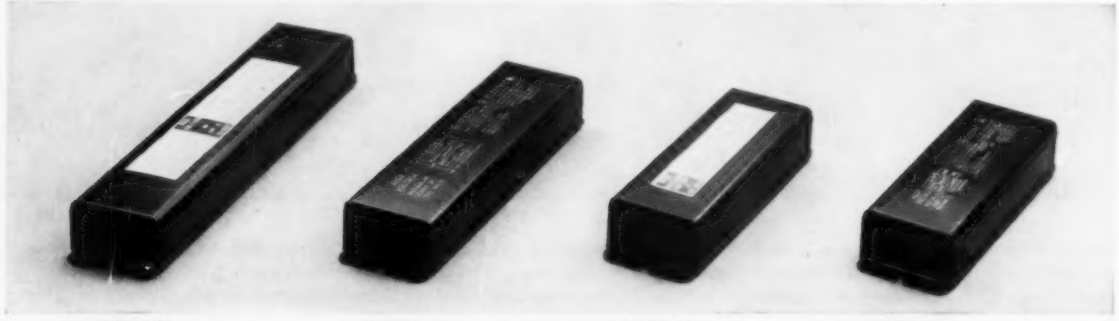
General Electric's complete line of shallow-height ballasts for slimline lamp applications enables fixture manufacturers to standardize on a shallower fixture channel. The shallow-height—$1\frac{25}{32}$ inches—as well as the generally smaller over-all dimensions makes possible greater design flexibility in fixtures and in architectural planning.

Weight reductions—ranging from one to four pounds—allow savings on fixture shipping costs. Mylar insulation and nylon coated wire give greater dielectric strength and longer life to all ballasts in this complete line. Quieter operation and increased efficiency are two other factors which can't be overlooked when specifying or ordering ballasts for slimline applications.

Choose the General Electric shallow-height ballast to fit your specific requirements. All units, of course, incorporate all of the General Electric standard "Quality" features—Exclusive Sound Rating System, Superior Quality Control, Longer Ballast Life, Lamp-Matched Design, Proved Product Leadership, Complete Customer Services.

For more information on the complete shallow-height line and all other G-E ballasts, write for bulletin GEC-983 to Section 401-32, General Electric Company, Schenectady 5, New York; or call your nearest G-E Apparatus Sales Office.

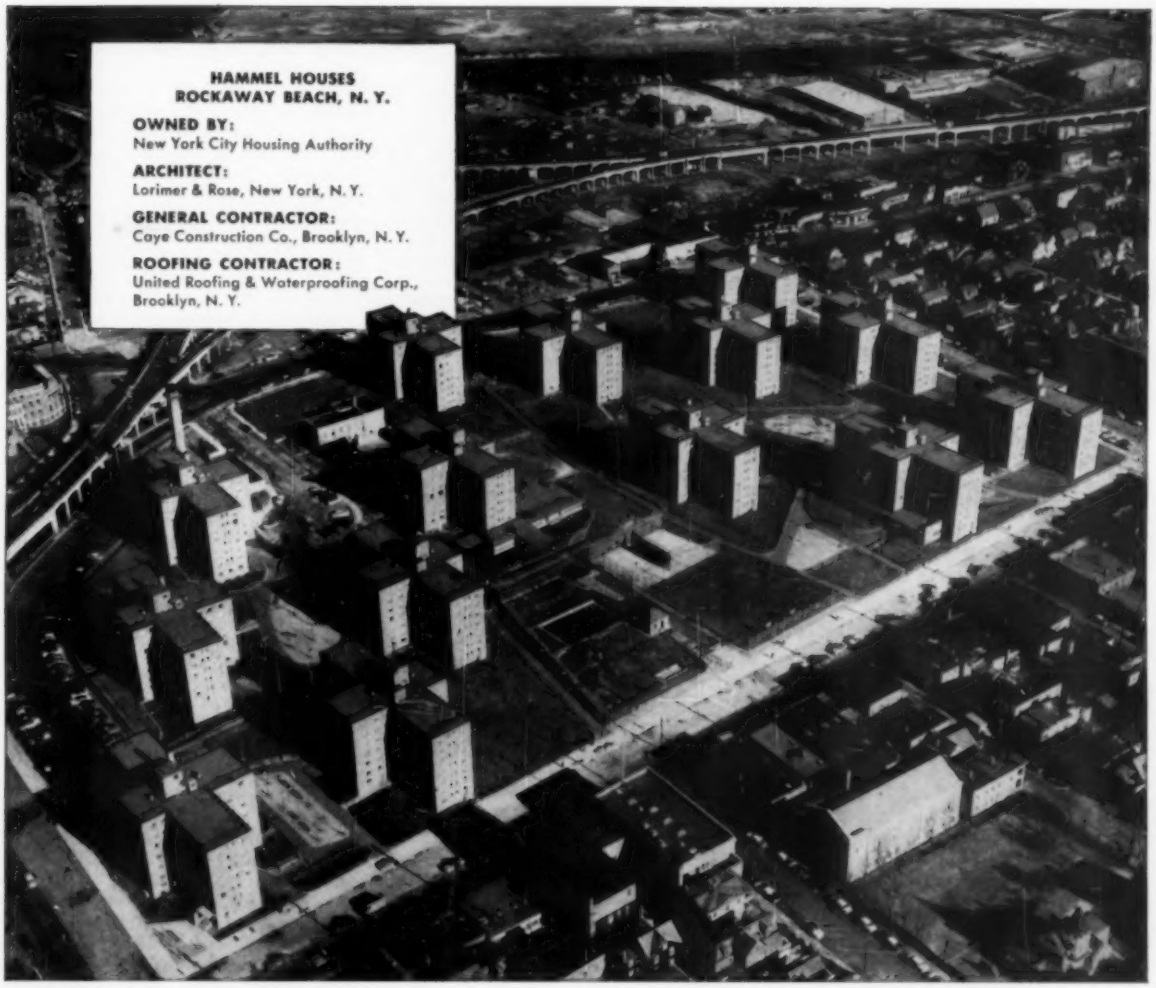
Catalog number	6G1010	89G600	89G662	89G693
Lamp types	96T12	48T12	96T12	48T12
Number of lamps	2	2	1	1
Circuit voltage	110-125	110-125	110-125	110-125
Frequency	60 cycles	60 cycles	60 cycles	60 cycles
Watts loss	26	20	27	20
Sound rating	C	D	D	D
Over-all length	11-3/4	9-1/2	14-5/16	9-1/2
Mounting length	11-9/64	8-57/64	13-3/4	8-57/64
Height	1-25/32	1-25/32	1-25/32	1-25/32
Weight (lbs.)	8	5-1/2	9-1/2	5-1/2
Weight savings (lbs.)	1-1/2	2-3/4	1/2	4+



89G662 6G1010 89G693 89G600

Progress Is Our Most Important Product

GENERAL ELECTRIC



For Public Housing, too...

RUBEROID BUILT-UP ROOFING

Gives Three-Way Protection

Hammel Houses is one of the newest projects of the New York City Housing Authority. In fast-growing Queens Borough, it provides over 700 low cost rental units in an airy, traffic free, park setting. On top of its 14 buildings: 105,700 square feet of Ruberoid Built-Up Roofing. (Specification 203 – Coal Tar Pitch, Tarred Felt, Slag Surfaced.)

For Hammel Houses – as for all built-up roofing – Ruberoid offers this 3-way protection:

FIRST –

The Ruberoid Built-Up Roofing Specification Book which contains the right specification for any type of roof. (If you don't have this easy-to-use reference book write for your free copy today.)

SECOND –

A complete line of quality materials for every roofing specification. Ruberoid quality has been the industry standard for over 60 years.

THIRD –

Dependable application by a Ruberoid Approved Roofer. His long experience with all types of built-up roofing means valuable advice in planning and the surest application on the job.

For more years of low-maintenance, trouble-free roof performance, specify the 3-way protection of a Ruberoid Built-Up Roof on your next job.

see our catalog in **S** or write for copy

The RUBEROID Co. **Asphalt and Asbestos Building Materials**

500 Fifth Avenue, New York 36, N. Y.

p/a manufacturers' literature

(Continued from page 158)

729. Joseph Goder Incinerators, AIA 35-J-41, 16-p. pamphlet on incinerators for residential, commercial, institutional, and industrial buildings. Presents selection chart for choosing proper type of unit; contains information on incinerators for small residential loads, heavy-duty units, and custom units for installations having over 1500 lb/hr of waste. Also gives data on flue-fed incinerators for apartment buildings. Drawings; dimensions; specifications. Joseph Goder, Inc., 4241 N. Honore St., Chicago 13, Ill.

specialized equipment

836. Acousti-Confessionals, 4-p. leaflet exhibiting line of acoustically paneled confessionals with translucent hygienic grille will be of particular interest to architects designing Catholic churches, convents, or chapels. Photos show grilles and panels in complete assembly. Drawings illustrate various assembly arrangements using full- and half-length panels. Gives standard sizes. J. R. Donald Co., 620 N. 108 Place, Milwaukee 13, Wis.

Send for this new 44-page

ARCHITECT'S SPECIFICATION GUIDE

for Scientific Laboratory Furniture Equipment

Helpful

Informative

Complete

YOURS FREE!

If you're planning new laboratory facilities for schools, universities, industrial plants, hospitals or research installations, you'll find this new Kewaunee Guide invaluable in the preparation of wood furniture equipment specifications.

It is designed to protect both you and your client, and to insure the most efficient and satisfactory installation. Profusely illustrated, its 44 pages detail the materials, construction and finishes essential to modern, attractive, easily maintained, long-lasting and economical laboratory equipment.

Ask for Specification Guide 101—or mail the coupon below. Your copy will be sent promptly.

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Please send a free copy of your new Specification Guide 101 for laboratory furniture equipment.

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City_____ State_____

Kelvinator Refrigeration Equipment, 106-p. notebook containing colorful, illustrated brochures on wide variety of refrigeration equipment for commercial and residential use. Sections include: refrigerated cabinets; water coolers; condensers and compressors; miscellaneous home appliances. Features automatic-defrosting merchandise cases, ice-cream cabinets and multiple-service cooler which provides both hot and cold water, ice cubes, and refrigerated compartment. Gives specifications, diagrams, capacities. Send inquiries to: Paul Heitmeyer, Kelvinator Div., American Motors, 14250 Plymouth, Detroit, 32, Mich.

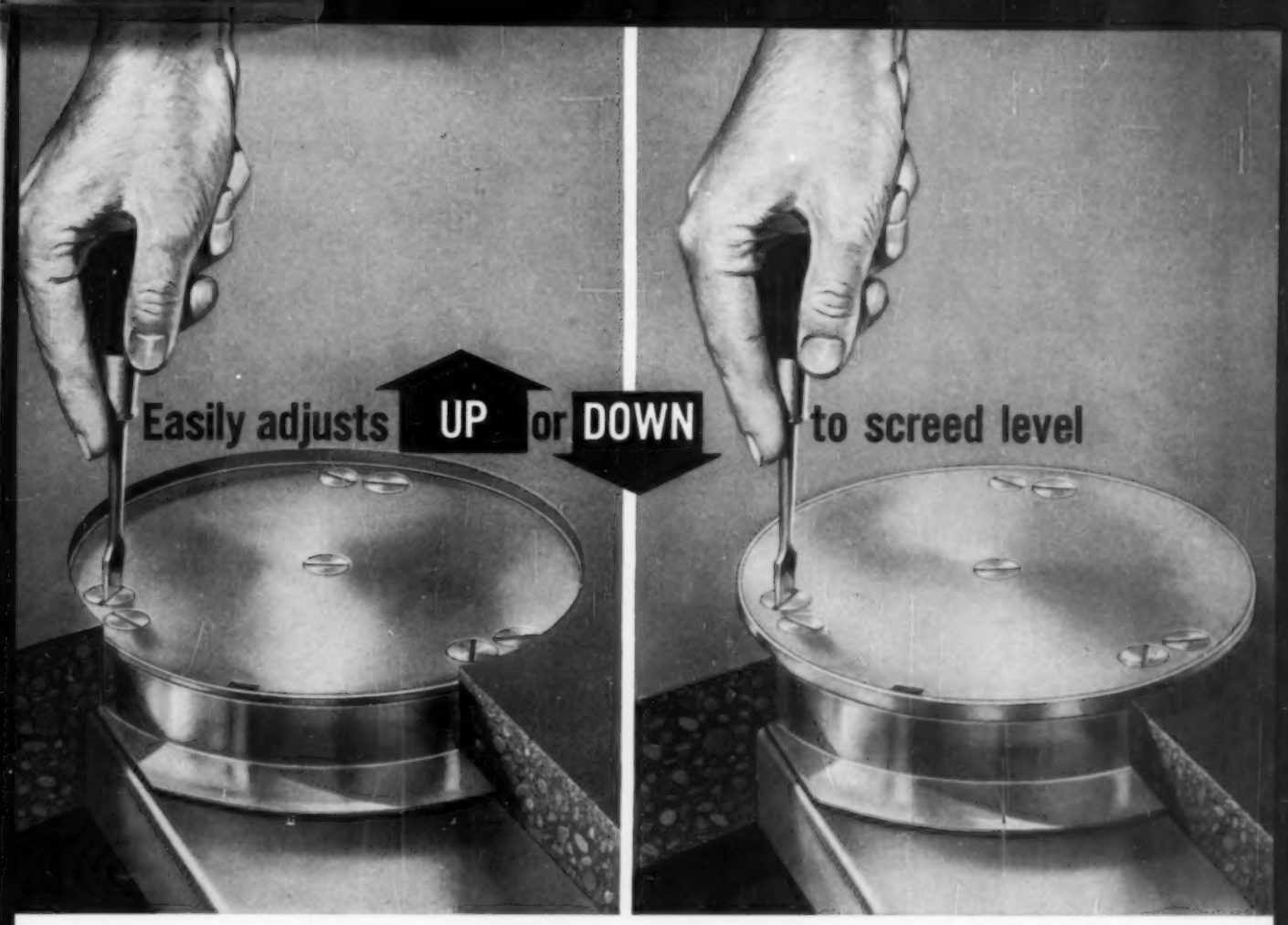
837. Special-Hazard Fire Protection (73) 28-p. booklet explaining engineered fire detection and control to protect industries with special fire hazards. Describes operation of rate-of-temperature-rise, smoke, and vapor detection systems; discusses fire control with fog-type water spray, foamed-water blanket, carbon dioxide, and dry chemicals. Also gives data on fire control with chemical foams and steam carbon tetrachloride. Drawings; chart of recommended extinguishing mediums for various locations. Automatic Sprinkler Corp. of America, 1107 Wick Ave., Youngstown 4, Ohio.

interior furnishings

Directional Designs, 112-p. hardbound volume presenting Paul McCobb's "Directional Furniture Collection" will interest architects and interior planners. Precise proportions and rigid rectangularity characterize series of cabinets, cases, and storage chests; brass-framed room dividers; marble-topped tables; and cane-panelled headboards, reproduced in black and white. Photos are supplemented with data on dimensions, construction, and materials; drawings suggest alternate furniture arrangements. Color chart shows leather, marble, and wood finishes. Order directly from: Directional, 201 E. 57 St., New York, N. Y. $6.

Acrylite Plastic, 36-p. booklet specifically designed to introduce versatility of acrylite shatterproof plastic sheets in decorating and design. Drawings accompanied by details suggest applications such as space divider which utilizes lightweight, translucent properties; ceiling panels; window screens. Actual samples of material are enclosed to show variety of possible patterns embedded into plastic. Available free to architects requesting on letterheads. Wasco Products Inc., Bay State Road, Cambridge 38, Mass.

63. Wood-Furniture Specifications, AIA-35, 44-p. specification guide intended to provide architects with up-to-date information on materials, finishes, and construction of wood laboratory furniture as well as aid him in specifying installation procedures for best results. Key drawings, sections, and details indicate important construction features of sliding and swinging door cabinets; open-leg tables; table tops of various compositions. Paragraphs in specification section, covering all necessary data can be copied intact or condensed. Kewaunee Mfg. Co., Adrian, Mich.



New adjustable header duct junction units assure a level finished floor

National Electric has developed an easily adjustable junction unit ring for its Header Duct Steel Underfloor Raceways.

The new Header Duct junction unit ring is designed to eliminate the raised spots and depressions that occur when underfloor raceway junction boxes protrude above or become recessed in the floor due to minor variations in the level of the concrete. Adjustment of three easily accessible recessed screws in the cover of the unit is all that's required to level the ring with the concrete surface . . . assures a smooth, level, attractive finished floor.

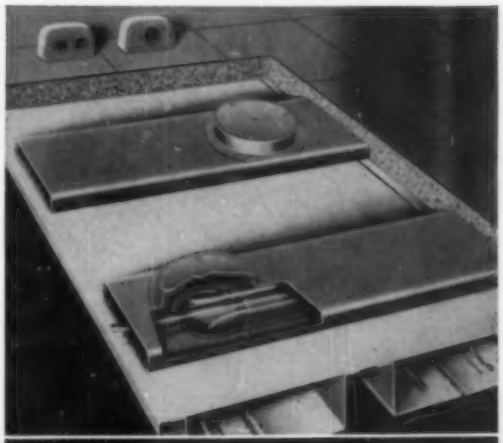
National Electric junction unit rings can be moved *down* as well as up after the concrete has set. A galvanized steel collar around the junction unit ring keeps concrete from bonding to the ring and preventing a downward adjustment.

This newest Header Duct improvement is typical of how every detail in NE Header Duct is engineered to help you give the owner complete flexible electrical distribution for power, light, communication or telephone—where and when it's needed.

If you're planning for cellular steel floors make sure you include Header Duct—the all-steel grounded feeder raceway from distribution panel to the raceways formed by the cellular steel floor panel.

National Electric Products

PITTSBURGH, PA.
3 Plants • 10 Warehouses • 36 Sales Offices



Where you plan cellular steel floors with underfloor electrical distribution always specify

HEADER DUCT

FOR SPLINTER-PROOF FLOORING OF UNEQUALLED BEAUTY AND UTILITY, SPECIFY *Kreolite!*

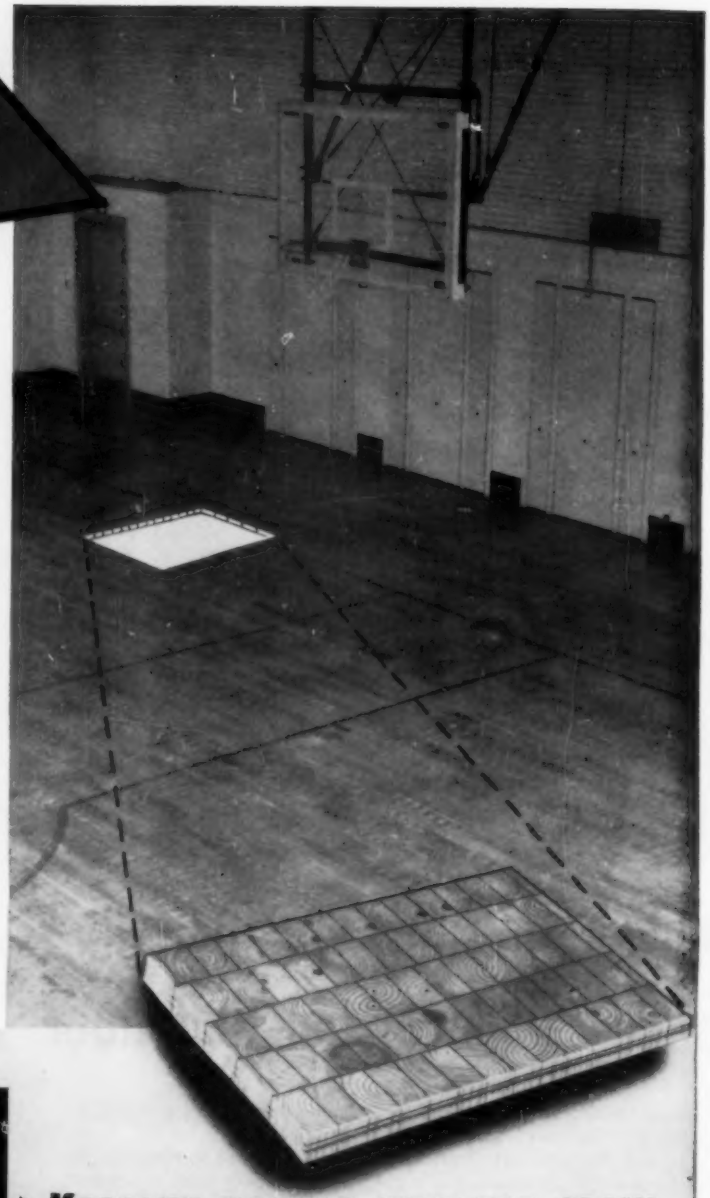
No need to worry any longer about costly flooring materials for those school areas where floors take a beating. The answer—Kreolite Flexible Strip End Grain Wood Block Flooring!

Kreolite Flooring is more economical to install than other types of gymnasium, vocational shop and laboratory flooring—and it is unequalled for beauty and utility . . . beauty and utility that come from Kreolite's selection of natural finish woods and famous end grain construction.

What's more, Kreolite Flooring is resilient, splinter-proof and cheaper—easier to maintain, too!

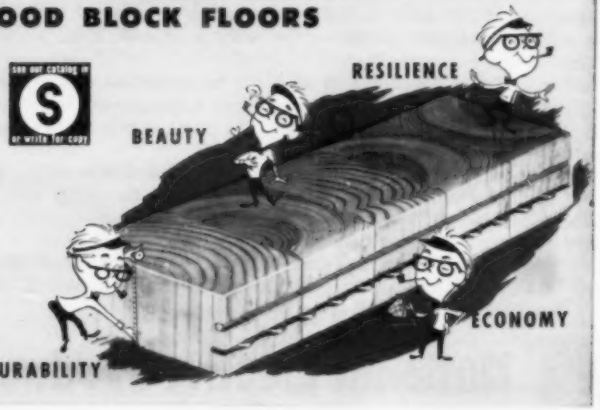
So, if you're looking for school flooring that's low in cost—yet beautiful and durable, *make sure it's Kreolite!* See for yourself the advantages of this fine flooring material. Mail the coupon below *today!*

Ascension Elementary School Gymnasium, Oak Park, Ill.
Architect, McCarthy & Smith



The Jennison-Wright Corp.
2463 Broadway
Toledo 9, Ohio

KREOLITE FLEXIBLE STRIP END GRAIN WOOD BLOCK FLOORS



Please send me a free sample and complete specifications of Kreolite Flexible Strip End Grain Wood Block Flooring.

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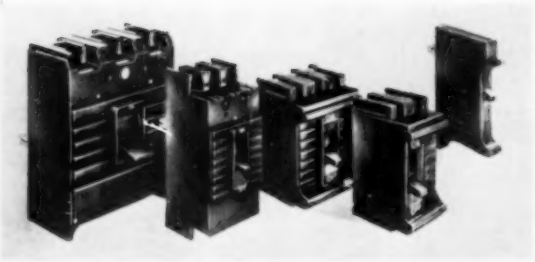


New concept of panelboard design has been made possible by development of compact, modular-case circuit breakers (above) *and standardized metal-clad panelboard enclosures* (right) *for power distribution busses rated up to 600 amp. Flexibility of design eliminates need for custom-built panelboards. Plug-in breakers require minimum of bolted connections and can be removed and replaced quickly by other units when modification of service is needed. Federal Pacific Electric Co., 50 Paris St., Newark, N. J.*

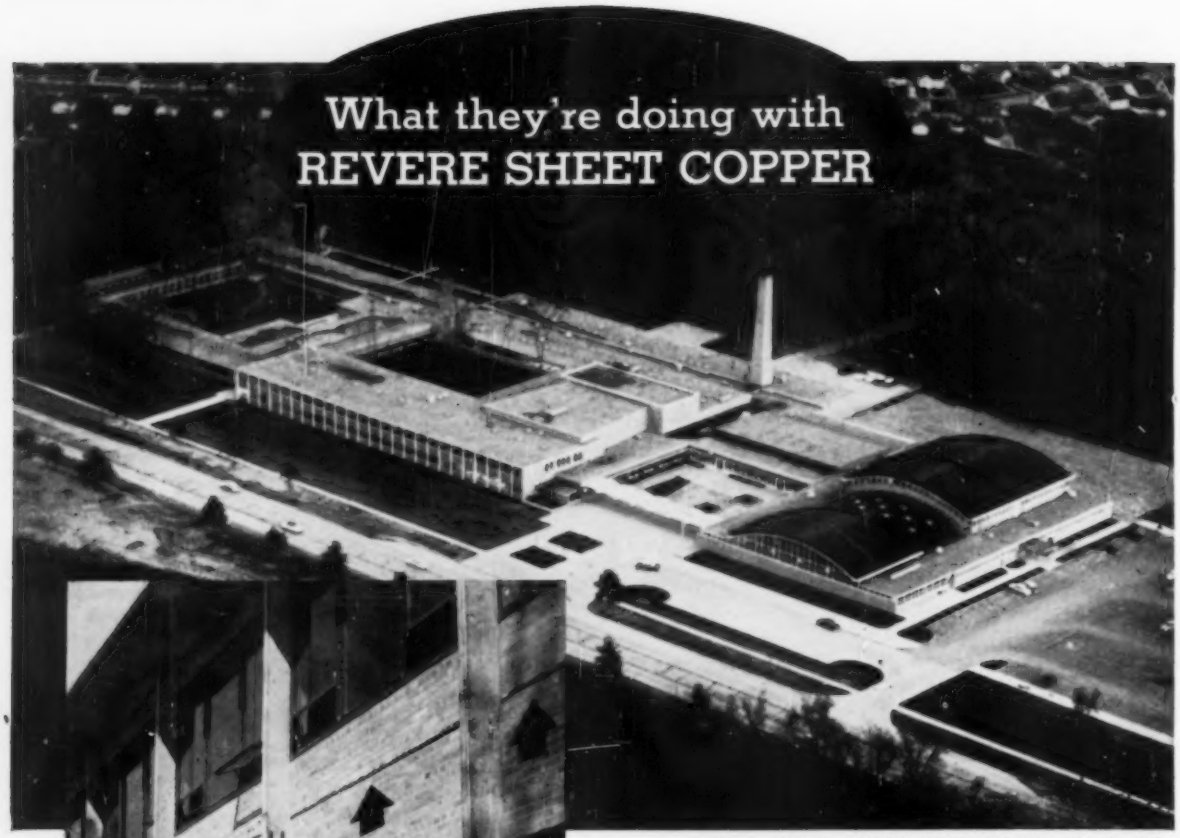
Functional partition system (below) *combines rapid, inexpensive installation of metal framing with large choice of panels that form actual wall. Continuous utility slots of preselected widths on both sides of framing members permit insertion of standard panels from 1/16" to 1½" thick. Three basic strengths of struts are available for walls as high as 20', and for unbraced horizontal spans up to 25'. Versabar Corp., 521 Communipaw Ave., Jersey City, N. J.*

New wide-temperature range molded insulation—hydrous calcium silicate bonded by asbestos fibers—suitable for steam and heated process piping withstands temperatures up to 1350 F (right). *Produced in half-cylindrical sections and segments 36" long, Kaytherm insulation requires only metal bands to fasten two mating sections. Easily cut and worked with ordinary tools, it comes in a variety of thicknesses ranging from 1" to 4" and accommodates pipes up to 33" in diameter. Keasbey & Mattison Co., Ambler, Pa.*

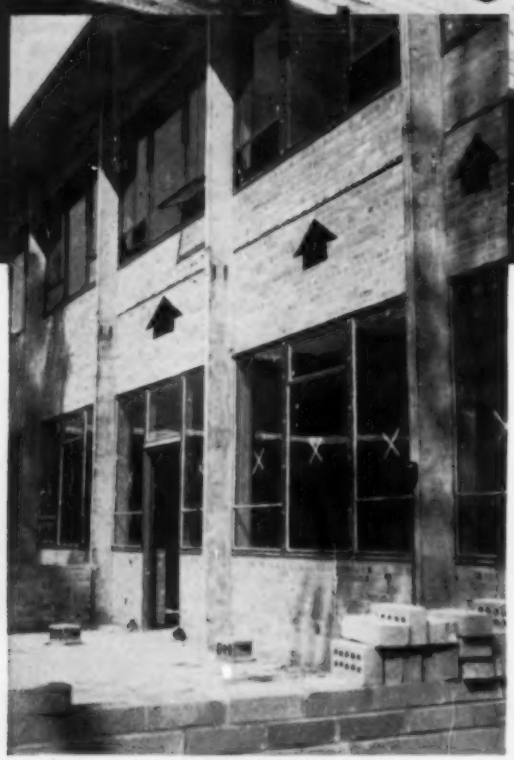
Ericofon, a one-piece desk or table-model telephone (above), *stands 9¼" high, measures only 4½" x 3⅞" at its base, and is said to weigh less than most handsets alone. Dial and connect-disconnect switch are located on underside of base. North Electric Co., Galion, Ohio.*

Food freezer (right) *stores and displays its contents like books on a shelf. This 18 cu ft freezer stores 640 lb of food, is 30½" wide, and occupies only half the floor space required for a chest freezer of same capacity. General Electric, Household Refrigerator Dept., Appliance Park, Louisville, Ky.*

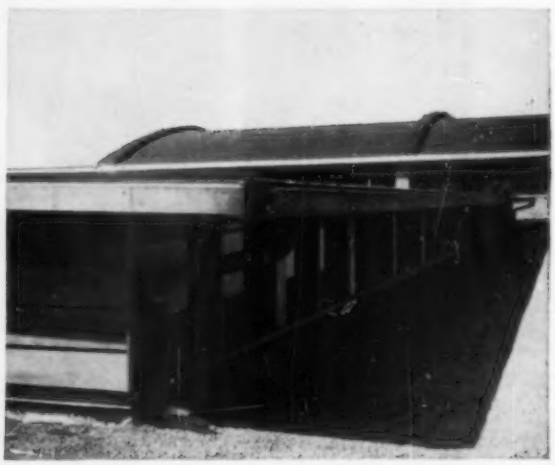
What they're doing with REVERE SHEET COPPER



Architects: EBERLE M. SMITH ASSOCIATES, INC., Detroit, Mich.
General Cont.: O. W. BURKE CO., Detroit, Mich.
Sheet Metal Cont.: J. D. CANDLER ROOFING CO., Detroit, Mich.
Revere Dist.: COPPER AND BRASS SALES, INC., Detroit, Mich.



Here is Revere-Keystone 2-Piece Cap Flashing shown installed between the windows, with receiver in place ready for the installation of the cap. A greenhouse conservatory will be attached to the main building at this point. After the conservatory roof has been completed and base flashing put into place the cap flashing will be inserted. This exclusive design permits masons and roofers to work without interference and makes installation of this factory-formed, 2-piece cap flashing simple and easy.



Approximately 15,000 lbs. of Revere Sheet Copper and 3,700′ of Revere-Keystone 2-Piece Cap Flashing were used on this school. Here you see gutter, conductor, splash pan, gravel stop and Revere-Keystone 2-Piece Cap Flashing . . . all of Revere Copper.

REVERE-KEYSTONE

EASY-TO-PLACE

2-PIECE CAP FLASHING

used to protect against leaks in

EDSEL FORD HIGH SCHOOL

Dearborn, Michigan

The Edsel Ford High School is a fine example of the use of Revere-Keystone 2-Piece Cap Flashing* in modern construction.

The architects, EBERLE M. SMITH ASSOCIATES, INC., have for years been using their own detail of a 2-piece cap flashing, but after discussing the many advantages of the new Revere-Keystone 2-Piece Cap Flashing with them, and the sheet metal contractor, it was readily accepted to meet the flashing specifications.

Here are some of its outstanding advantages:

FREE WALL—It provides the roofer with an unobstructed wall face for the placement of the base flashing. Receiver is laid in during construction of wall, while the insert is snapped in only after all roof and base flashing work is finished.

STRAIGHT CLEAN LINE, PERMANENT GOOD LOOKS—Factory-bent to precise dimensions. This, with the one-inch locking tongue, assures alignment of receiver slots, uniform appearance.

PERFECT WEATHER-SEAL—Factory-formed angles on the receiver and insert cause latter to hug the base flashing, weather-seal effectively. Water cannot blow up behind flashing.

NON-LEAKING DAMLOCK—Requires no soldering except for special conditions. The interlocking copper-to-copper overlap creates a dam which prevents longitudinal travel of water and drains seepage to the face of the wall.

VERTICAL RECEIVER SLOT ON WALL FACE—Position of vertical receiver slot on face of wall eliminates possibility of the receiver slot being crushed shut by weight of masonry.

CAN BE DISASSEMBLED—Insert can be removed with a simple tool and used again, with no loss of neatness or snugness, when the built-up base flashing or roofing have to be repaired.

Find out about this newest method of flashing neatly, quickly, safely, positively. Send for descriptive literature today! Write Advertising Department.

FREE! For group showing—Instructive 16 mm motion picture in sound and color—"SHEET METAL IN BUILDING CONSTRUCTION." A "must" for every Architect, Building Owner, Spec. Writer, Sheet Metal Contractor and Mechanic. Write Revere Advertising Department.

* Patent No. 2,641,203 Other Pats. Pending

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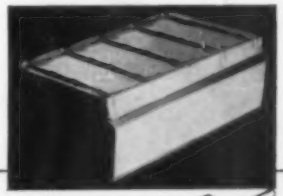

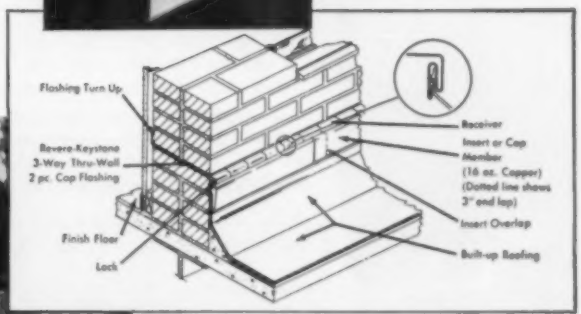

Above is detail of Revere-Keystone 2-Piece Cap Flashing showing combination receiver and Thru-Wall Flashing. Receiver is furnished in 49" lengths (48" layup), with 1" overlap in a locking tongue dam which assures proper alignment. A standard 4" flat copper receiver with ¼" hook dam is also available.

Photo at left shows Revere-Keystone 2-Piece Cap Flashing installed at the Edsel Ford High School. Skylights in foreground also are flashed with Revere Copper.

p/a products

(Continued from page 165)

air and temperature control

Multi-Pak Air Filter: dry-type air filter is designed for high-efficiency requirements of plants manufacturing chemicals, film, and other specialized products. Renewable media sheets are folded over compressive-spring frames and inserted into one of seven pockets in each filter unit. Effectiveness in removing dust, pollen, or smoke is regulated by varying media—from cellulose-fiber sheets to glass-fiber mats. Unit is 2'x2'x22¾" and exposes 50 sq ft of media. American Air Filter Co., Inc., Louisville 8, Ky.

Remotaire Air Conditioner: new self-contained, wall-hung air-conditioning unit permits manual or automatic individual-room control. Low-speed centrifugal blowers circulate air which is cooled by integral refrigeration circuit and warmed by steam or hot-water coil connected to central heating system. Exterior grille is installed flush with outside wall while 21½" cabinet with supply grille at top, projects about one foot into room. Units are available in ¾ hp or 1-hp capacities. American-Standard, Pittsburgh 30, Pa.

Payne Panelair: forced-air wall heater, newly redesigned to allow installation between studs on standard spacing, can be used with all common-type gases. Vertically installed unit with centrifugal blower discharges warm air from floor level and removes air from ceiling level to prevent stratification. In addition to front grille, two others may be optionally located at side and rear to permit simultaneous control of three rooms. Heater comes equipped with automatic shut-off controls, ribbon-slot burner, wall thermostat, and protectively-lined heat exchanger. Payne Division of Carrier Corp., 700 Royal Oaks Drive, Monrovia, Calif.

Norman Schoolroom System: combination of automatic, gas-fired, forced-air perimeter heating/ventilating system with bookshelf sections allows economical classroom design. Complete single-room package includes furnace, enclosure unit, and shelf sections which fit against wall to form tight duct for maximum air passage. Perimeter diffusers run along top of each section. Enclosed furnace is available in 70-, 80-, and 100-thousand BTU input models providing ceramic-coated heat exchanger; access panels; thermostatically-controlled outdoor louver assembly; filters for ventilation and room air. Both shelf and furnace sections are of heavy gage steel and have recessed kick-space. Norman Products Co., Columbus, Ohio.

construction

Surco Concentrates: latex-emulsion replaces partial water content of cementitious mixes to provide resilient, durable, water and oil retardant surfaces. For non-skid, uninterrupted terrazzo surface, compound is combined with terrazzo mix, which can then be poured directly over wooden subfloors to total ½" thickness. Because floor receives added flexibility, sand bed and dividing strips need not be used, thereby reducing grinding time and cost, considerably. Latex-cement mixtures applied directly over damaged concrete surfaces (*above*) produce permanent,

(Continued on page 172)

Look! COOLER-TOT!

The New, Different Child's Dispenser

USED WITH ANY MAKE WATER COOLER OR USED ALONE WITH ANY WATER OUTLET

COOLER-TOT is a miniature cooler design with king-size appeal and convenience. Providing safer, more sanitary, splash-proof drinking, it delights children and offers unique advantages to management of all places frequented by children.

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COOLER-TOT is the ideal dispenser that is both practical and economical. Containing no operating mechanism, it requires no service. Easily connected to any water cooler or ordinary water outlet, COOLER-TOT *actually effects profits for . . .*

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and . . . every place frequented by children!

EVERY FEATURE DESIGNED FOR HARD USE AND ENDURANCE

- Sturdy, 31" high, grey hammertone finish cabinet
- Stain-proof, white vitreous china top
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STARK *glazed facing tile*

now immediately available

...provides beauty, service and imagination

This stairwell detail shows one of the many imaginative ways in which school architects are using Stark Glazed Facing Tile as a beautiful, economical interior finish.

So many school needs can be satisfied with this single versatile material – hard burned structural clay with ceramic glaze. Builds quickly, defies hard usage, saves maintenance, eliminates painting. Available in pleasing colors especially developed to aid vision by color authority Faber Birren.

Now, thanks to increased plant capacity, you can count on quicker deliveries – with no sacrifice of Stark's traditional high quality.

Elementary School, Ellenville, N. Y.
Howard C. Snyder, Reginald E. Marsh, Starett and Van Vleck, Associate Architects.

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15 East 26th Street, New York 10, N. Y.

FTI STRUCTURAL FACING TILE INSTITUTE

for maximum **PROTECTION AGAINST** **SHORT CIRCUITS** *or* **OVERLOADS**

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PANELBOARDS

circuit breaker features

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2. Bi-Metal Thermal Element
3. Current Flow Path
4. Load Terminal
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QP QUICKLAG P

A plug-in thermal-magnetic type featuring QP Quicklag P., Circuit breakers. Screwless assembly (just slip the breakers in) one pressure type of connection between circuit breaker and bus bar and sequence bussing to balance the load to permit double pole individual trip combinations and single pole circuit breakers with common trip are other features. Panel is connect and has standard knockouts at top and bottom.

QS QUICKLAG S

A thermal-magnetic Circuit breaker type with screw connection to bus bar. Features QS Quicklag S Circuit Breakers, sequence bussing to balance the load to permit double pole individual trip combinations and single pole circuit breakers with common trip. Furnished in standardized cabinets with standard knockouts, top and bottom.

Install these safe, efficient panelboards on all lighting branch and other circuits where dependable automatic circuit protection is desired.

Approved by the Underwriters' Laboratories' Inc., these long-lasting, trouble-free panelboards provide positive protection against service interruptions caused by overloads and short circuits.

A feature of these panelboards is the trip-free handle of the circuit breaker which prevents contact from being held in closed position against overloads and short circuits. The inverse time limit prevents the circuit breaker from tripping on momentary overloads and quick break of contacts is provided when manually operated or automatically tripped.

Ⓕ Circuit Breaker Panelboards are of two types — the QP Quicklag P, and the QS Quicklag S. All are of the panel base assembly type which means that all components are available on Dealer's Shelves for quick and easy assembly on the job.

Boxes are of ten sizes — five with main lug connections and five with main circuit breaker connections, 50 to 225 amps., capacity. These, plus a stock of individually-packaged single and double pole circuit breakers will fit almost any job requirement. Circuit Breakers are interchangeable, so that it is as easy as changing a light bulb to make changes or add new units.

Circuit Breaker capacities are 10, 15, 20, 30, 40, 50 amps., 4 to 42 poles, 120/240 volts 3-wire single phase or 120/208 volts 4-wire three phase mains with lugs or main circuit breaker.

For complete information about these new and better panelboards consult your nearest Ⓕ representative listed in Sweets or see your nearest wholesaler.

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p/a products

(Continued from page 168)

waterproof bond and uniform finish. Similar applications can be made to bind plaster, metal, wood, or glass. Surco International Corp., 352 W. 12 St., New York 14, N. Y.

Air-Jet Chimney: improved model of preassembled chimney features new top-cap design with baffled openings to reduce soot accumulation on housing and to provide stronger draft. In addition, stainless-steel smoke pipe replaces porcelain-enameled type; new seam-welded, tapered pipe has oversize beads on both ends to prevent crimping. Outer pipes of base and intermediate sections are constructed of galvanized steel. For cleaner appearance, vent louvers are located on only one side of housing. Chimney package weighs 100 lb or less and is said to permit installation in one man hour. General Products Corp., Fredericksburg, Va.

Seal-Tab Shingles: self-sealing asphalt-roofing strip shingles are said to withstand winds of hurricane force. Special adhesive is factory-applied to back of each shingle tab while aluminum strip at top acts as protective parting agent and prevents shingles from adhering when packaged. Interruptions along adhesive lane permit full drainage of accumulated moisture. Shingles are applied in normal manner and develop bond over period of time determined by outdoor temperature. The Flintkote Co., 30 Rockefeller Plaza, New York 20, N. Y.

doors and windows

Glass-Fiber Windows: to deter harmful effects of ultraviolet light upon materials in storage, new window of plastic-reinforced glass fibers, filtering ingredients, and integral color may replace painted glass. New, molded panes are said to admit up to 50 percent of soft, diffused light while excluding injurious rays; highly resistant to breakage, chemicals, smoke, and smog, units are installed by usual glazing method. Although cost exceeds that of ordinary glass, durability and low maintenance cost eventually give economic edge. Panes measure 14" x 20" and are available in variety of light-fast colors. Firestone Tire & Rubber Co., Akron, Ohio.

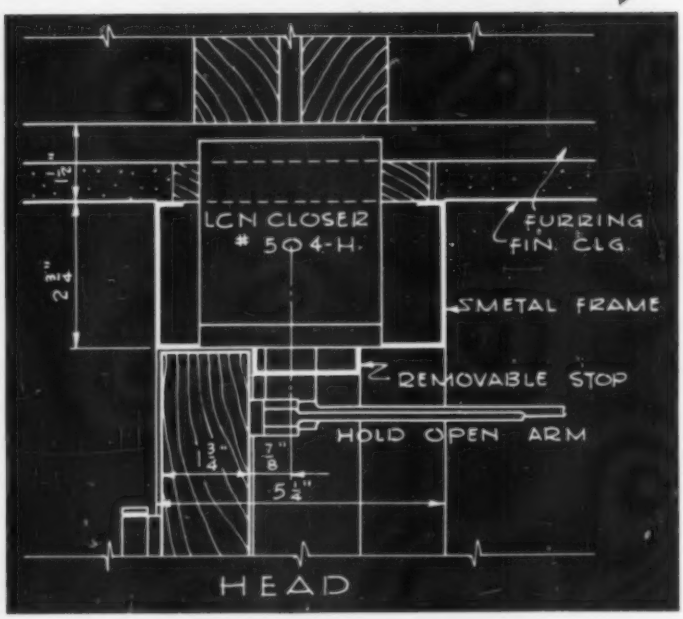
insulation

D-P Rope Caulk: new non-hardening, non-staining rope calk is recommended for weather-stripping storm or sash windows of any material. Calk may also be used to seal screens, doors, baseboards, tubs, or sinks and as gasket for plumbing fixtures. Easy to apply, chip-proof, crack-proof calk is said to be reusable. Packaged rolls are available in 18 ft and 90 ft lengths. Dicks-Pontius Co., 5300 Huberville Ave., Dayton 3, Ohio.

sanitation, plumbing, water supply

Basmor Incinerator: new gas-fired incinerator burns continuously to dispose of average waste accumulation while automatic timing control ignites main burner to handle larger charges. Heavy-steel outer jacket, aluminumized-steel chamber, and glass fiber insulation keep exterior cool; non-heat conducting plastic knobs permit safe access to charge door and ash drawer at all times. Finished in baked enamel, unit stands 3" above floor on integral steel-footed base, to allow installation on combustible flooring. Bastian-Morley Co., LaPorte, Ind.

Shower Head: for institutional use, newly designed shower head can be installed with rear-mounted bolts which eliminate exposed screw heads. Adjustable face plate sprays at angles of 15 or 30 degrees from wall; water velocity and volume are fixed with tamperproof screw, while serrations direct water in compact spray. Plate is made of black mineral-filled phenolic resin to sustain temperatures of 180 F; body of cast brass is equipped with tappings for either ¾" or ½" I.P.S. supply. American Radiator & Standard Sanitary Corp., Pittsburgh 30, Pa.



CONSTRUCTION DETAILS
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Shown on Opposite Page

The LCN Series 500 Closer's Main Points:

1. Efficient, full rack-and-pinion, two-speed control of the door
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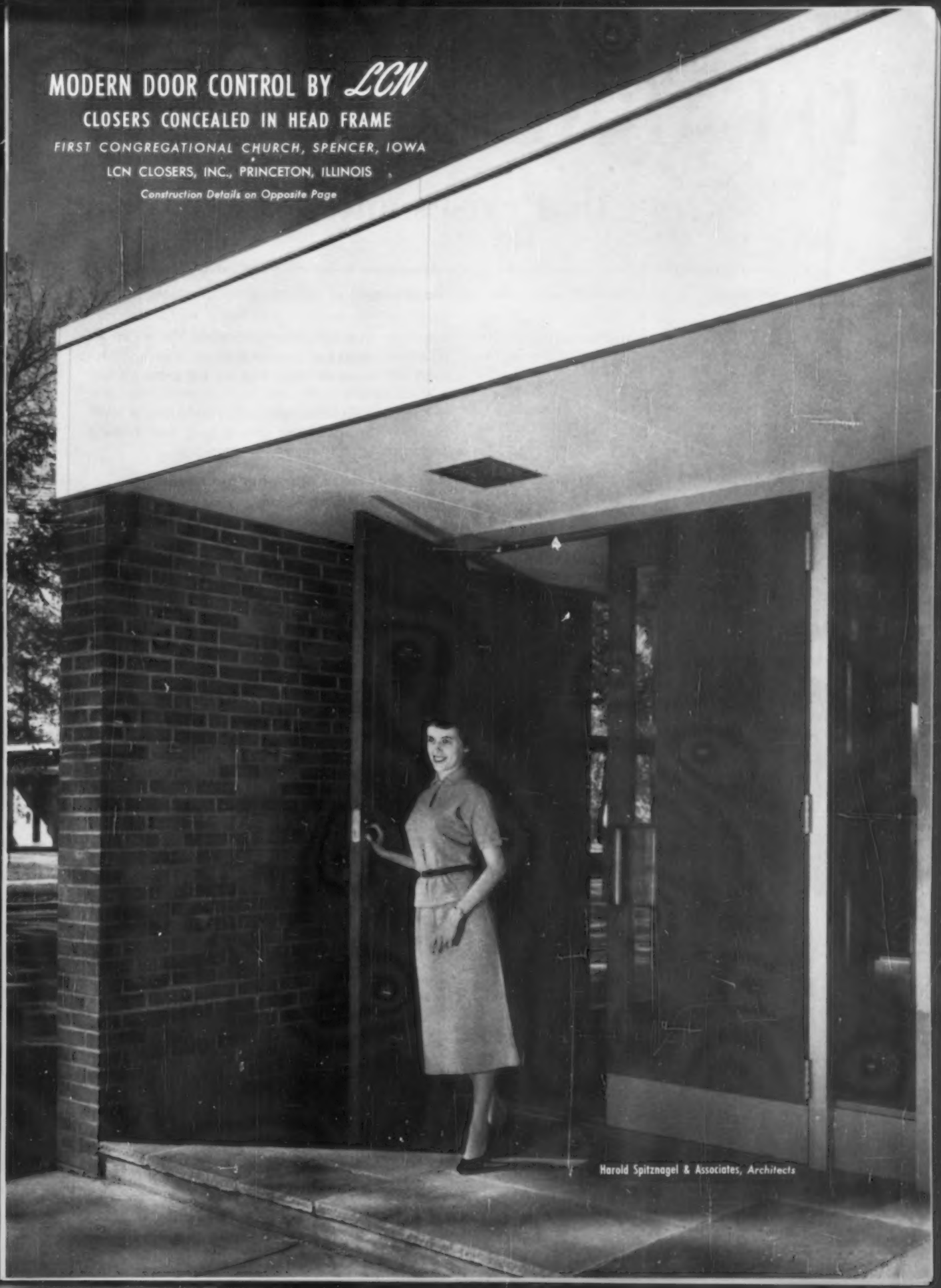
Construction Details on Opposite Page



Harold Spitznagel & Associates, *Architects*

ITEM: ALUMINUM

that raises and stores like a

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This rolling door demonstrates many of the advantages aluminum offers for industrial architecture.

For example, it weighs *only one-third as much* in aluminum as the same door made of steel. Yet, the Kaiser Aluminum used in its construction meets the most exacting strength and performance requirements.

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Outstanding among aluminum's unique combination of useful properties is its resistance to corrosion. Because aluminum requires no painting or rust-proofing, maintenance is practically eliminated. It resists both weather-wear and the corrosive attack of severe industrial atmospheres.

In this engineering-building "rolling door," interlocking aluminum slats coil like a window shade around barrel inside compact hood located above and behind doorway.

DOOR

window shade

In addition to this "rolling door," many other types of doors take advantage of aluminum's efficiency and economy. The four types shown below are recommended for specific applications.

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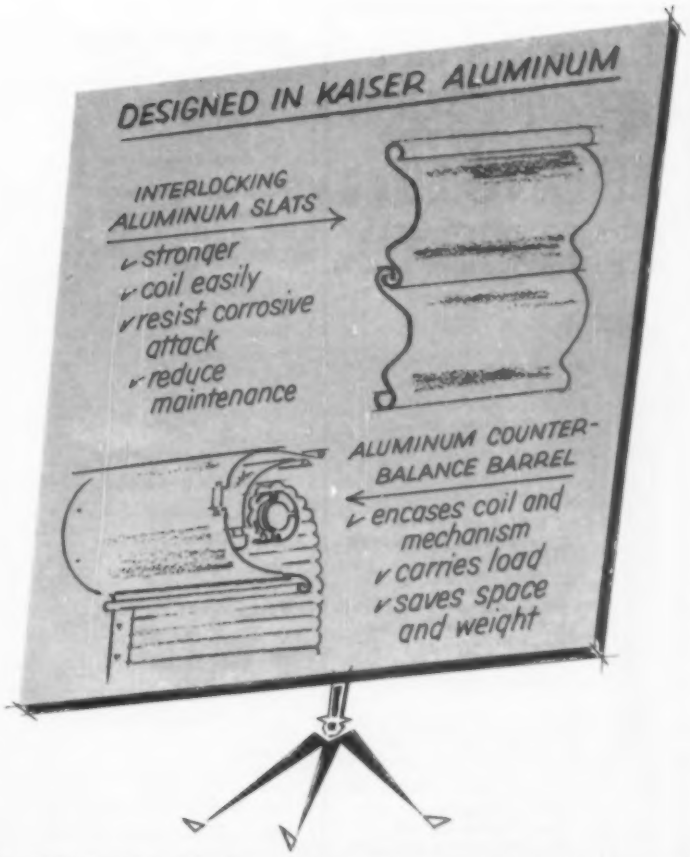

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Details on a
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PENCIL
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Mars Lumograph lead)

Mars Technico clutch mechanism; made of brass for longer life. Noiseless, smooth working, almost frictionless. Serrated to lock lead in place. Grips 0.3" of lead.

Brass tip; 6 bands of serrations prevent slipping.

Mars-Lumograph lead; ribbed to hold securely. Does not flake or smudge; so opaque, inking-in is unnecessary.

Balance point; located 2.7" from tip for perfect pencil balance.

Mars Technico tubular brass insert; houses the lead. Threaded at base for positive locking of clutch mechanism in place.

Housing; kiln-dried cedar for light-but-sturdy construction.

Total weight only .47 oz.

Spring; 2" long, made of fine steel for proper tension control of clutch mechanism.

Mars Technico push button; for instantaneous release or adjustment of lead; with brass lead-sharpener, recessed in push button; easily removable. Keeps lead sharpened without spreading graphite dust in work area.

Mars-Lumograph lead; finest graphite meticulously graded from EXB to 9H (18 degrees) for better reproduction

Unique brass cap at top, prevents lead from falling out when clutch mechanism is released.

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p/a reviews

books received

European Architecture in the Twentieth Century, Vol. 2. Arnold Whittick. Philosophical Library, Inc., 15 E. 40 St., New York, N.Y., 1955. 271 pp., illus., $10

Contemporary Chruch Art. Anton Henze & Theodor Filthaut. Sheed & Ward, 840 Broadway, New York, N.Y., 1956. 128 pp., illus., $7.50

The Gothic Cathedral. Otto von Simson. Pantheon Books, Inc., 333 Sixth Ave., New York, N.Y., 1956. 307 pp., illus., $6.50

Geology and Ourselves. F. H. Edmunds. Philosophical Library, Inc., 15 E. 40 St., New York 16, N.Y., 1956. 256 pp., illus., $10

"truly creative"

Mies van der Rohe. *L. Hilberseimer. Paul Theobald & Co., 5 N. Wabash Ave., Chicago, Ill., 1956. 200 pp., illus., $9.75*

Truly creative designers, in the true sense of the words, are rare: among the few, Mies van der Rohe is one. A view of his work and reading his words thereon, will be valuable and rewarding.

"Create form out of the nature of our tasks with the methods of our time. This is our task. . . . We refuse to recognize problems of form, but only problems of building. Form is not the aim of our work, but only the result." These thoughts were advanced by Mies 30 years ago in his short-lived, short-titled magazine *G*. Many, at that time, felt that these thoughts were regarded rightly as radical and extreme; these theories later were recognized as being extremely right. At that distant date, the pattern for his later work had already taken form—the shape of what was to come.

Mies rightfully ranks high among the leaders of the contemporary architectural movement. Much has been written about some of these leaders; less about others. This book is one of the surprisingly few about Mies.

Worth knowing well is the architect of such high accomplishments and the few thoughts of his which have been published. As examples, weigh these from his inaugural address (1938) as Director of Architecture at Armour Institute of Technology: "So we shall emphasize the organic principles of order as a means of achieving the successful relationship of the parts to each other and to the whole. . . . The long path from material through function to creative work has only a single goal: to create order out of the desperate confusion of our time. We must have order, allocating to each thing its proper place and giving to each thing its due according to its nature. . . . Nothing can express the aim and meaning of our work better than the profound words of St. Augustine: 'Beauty is the splendor of truth.'" His strenuous search in his work for order, logic, truth, is the key to his work and the keynote of its technical brilliance and delicate refinement.

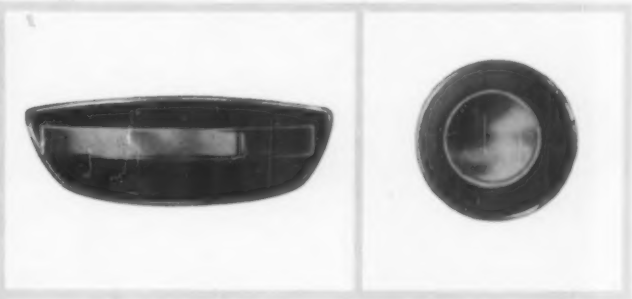
The preceding quotations are from the first book wholely and solely about Mies, an excellent monograph written by Philip C. Johnson and published (1947) by the Museum of Modern Art on the occasion of the Museum's exhibition of Mies' work. All of the buildings which Mies considered significant were illustrated in it; and a frank, full, fair treatment of his work and working principles was included.

This later book bears the same title as the first. The author, L. Hilberseimer, like Mies, has been for years associated with the Armour Institute of Technology (now merged with Illinois Institute of Technology). His book places emphasis on Mies' design philosophy, principles, and practices; and principally on practical examples of his work built in this country. For the proper appreciation of his work, the theories, timeless though traditional, of struc-

(Continued on page 180)

Accent... new styling in cabinet hardware

by STANLEY



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(Lumbermens Mutual Casualty Company, a division of Kemper Insurance)

Architects & Engineers:
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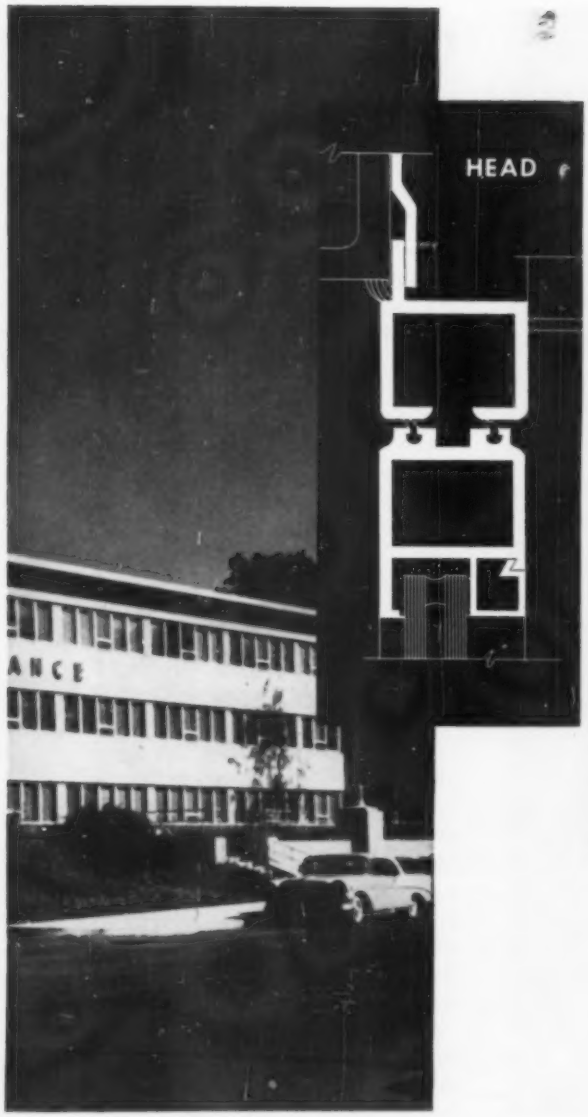
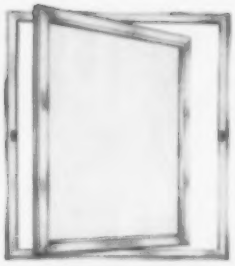
General Contractor:
George A. Fuller Company, New York

Erector of Windows and Mullions:
F. H. Sparks Co., Inc., New York

This building features Reynolds Aluminum Vertically Pivoted Windows Series 100, Reynolds Aluminum Mullions and Column Covers.

REYNOLDS





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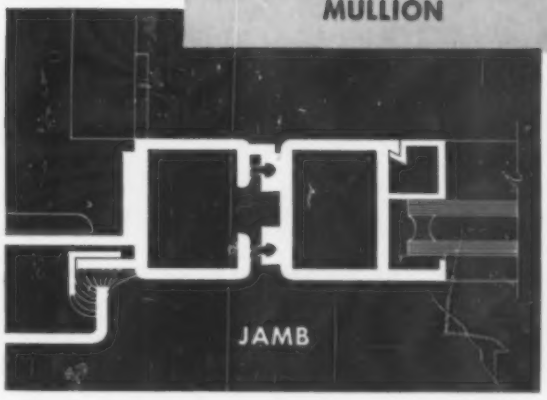

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ALUMINUM

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reviews

(Continued from page 174)

ture and style are traced in brief outline. The course of his growth and progress through his well known European homes and housing at Stuttgart (1927), at the Barcelona Exhibition (1929), the Tugendhat house (1930), and at the Berlin Exposition (1931) is shown. The full flowering follows in Chicago; and it witnesses that, all unwittingly, Mies the non-native has become the logical, lineal successor to the revived fame of the once famous, native Chicago school.

The author generously gives copious design details of Mies' important Chicago work: the splendid, inspiring buildings and campus at the Illinois Institute of Technology where he is Director of the Architectural Department; and of the more recent Lake Shore Drive apartment buildings. Their design characteristics are clearly classified: orderliness extraordinary; restraint almost to the point of reticence; honesty of expression; clarity of construction; meticulous, exacting execution of detail; the whole wholely within the realm of greatness.

The text tenders additional apt analytical comments: "His work is based on the conviction that no contradiction should exist between architecture and structure; that the two should be in harmony; that structure, while not in itself architecture, can be a means of architecture if the builder understands the organic principles of order which relate every part of the building to the whole, according to its importance and value. . . . His architecture, though dependent on structure, is infinitely more than structure. It grows out of and elaborates structure, but attains a transcendence of the material into the realm of the spiritual. . . . The simplicity which he strives for, which seems to be so effortless, is the result of unceasing thought and painstaking work. . . . His architecture

(Continued on page 184)

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FOR THE NEW LOS ANGELES POLICE HEADQUARTERS OF *DRAGNET FAME...**

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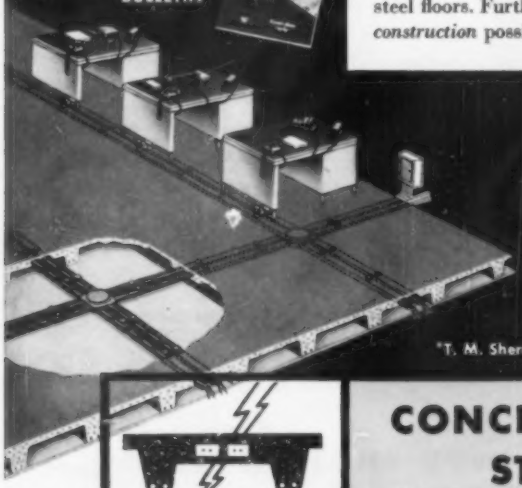
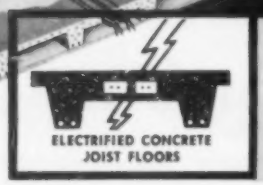


Los Angeles Police Administration Building	Building
Associated Architects: Welton Becket, F.A.I.A., and Associates and J. E. Stanton	Architects
Associated Structural Engineers: Murray Erick and Paul E. Jeffers	Engineers
General Contractors: Morrison-Knudsen Co., Inc. and Ford J. Twaits Co. (joint venture)	Contractors

*T. M. Sherry TV, Inc.



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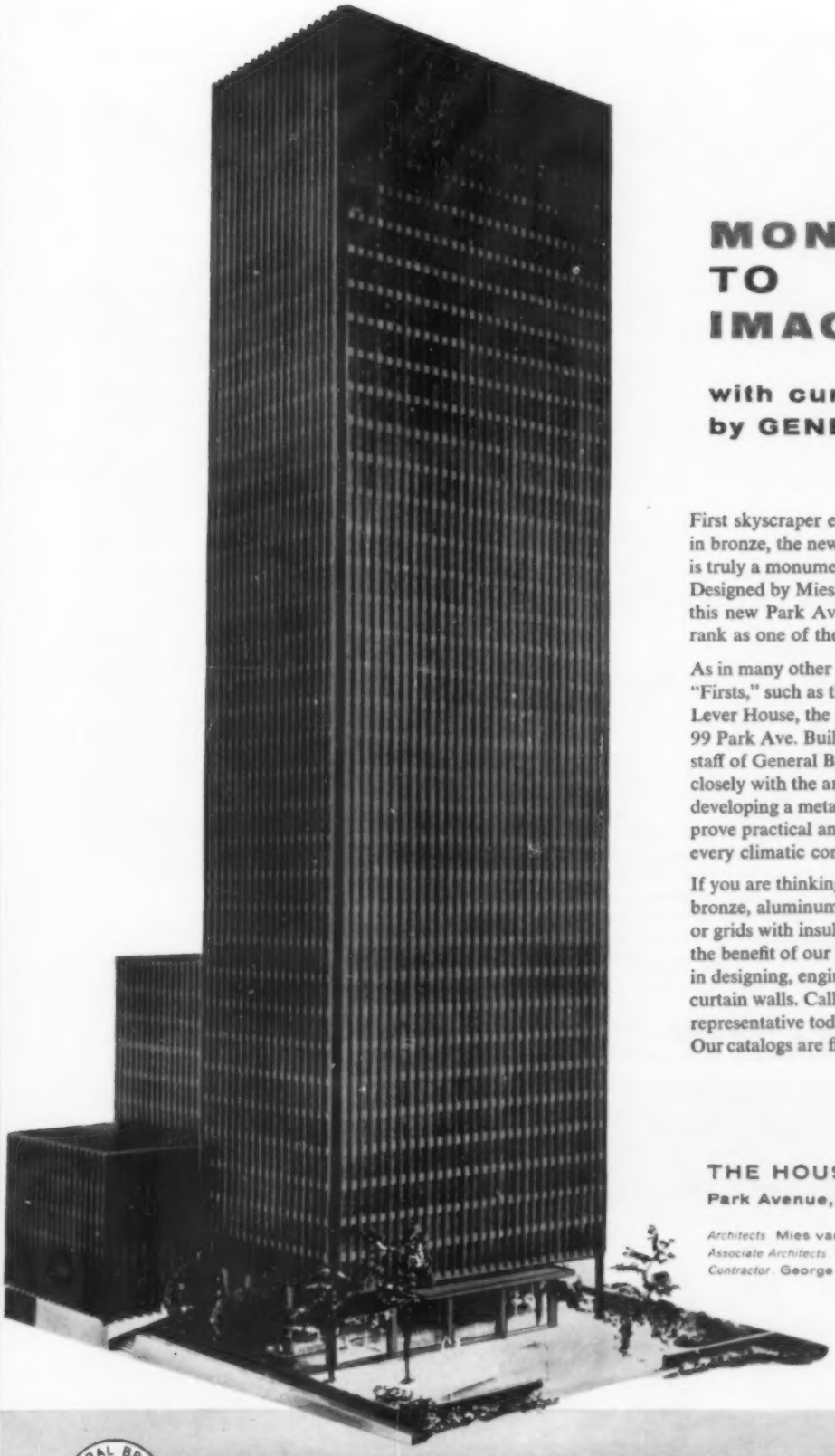

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reviews

(Continued from page 180)

emerges from the nature of the material and is the embodiment of truth and harmony." These are words of great praise greatly merited.

Professor Hilberseimer carefully and capably considers further facets of Mies' work: his general use of material, color, proportion, space; their particular application in buildings of various types. For Mies, the author displays deep admiration and appreciation—which appear conservative in the light of their justification and are contagious by the very nature of their justification.

Creative spirits have always had critics, antagonistic and severe, as well as copyists, adulatory and sympathetic. Mies has both; some are large in stature and standing. He has little to fear from his critics; much to fear from his imitators. Although Mies' safe and secure place as one of the greater architects of all time appears assured in history, this evaluative book will assist in making such assurance doubly sure.

LAWRENCE E. MAWN

master of the free form

Oscar Niemeyer: Works in Progress. *Stamo Papadaki. Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y., 1956. 192 pp., illus., $10*

Stamo Papadaki has compiled a book of photographs and drawings of recently completed work and projected work of the notable Brazilian architect, Oscar Niemeyer. Papadaki has shown admirable restraint in limiting his text to a description of the material presented. Of interest are the "Notes on Brazilian Architecture" written by Niemeyer himself, in which he explains that Brazilian architecture reflects the social contradictions of that country and also the absence of a large building industry with prefabricated assemblies.

(Continued on page 186)

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PLANTS: ARNOLD, PA. • ELLWOOD CITY, PA. JEANNETTE, PA. • OKMULGEE, OKLA.

WSW 6241

reviews

(Continued from page 184)

The book is divided into three parts: Part I, large scale buildings; Part II, buildings and projects of striking form; Part III, smaller buildings, especially those reflecting previous themes. This is a somewhat arbitrary division, as the author seems willing to concede that it is. Altogether the book presents 26 works—one of the most fascinating of which is the final project for the Modern Art Museum in Caracas. This is an inverted pyramid resting on a hillside platform, to which 18 pages of photographs of a model and of the architect's beautiful drawings are devoted. The Cavanelas house in Pedro do Rio is one of the most beautiful. This is sheltered under a tremendous rectangular roof suspended at the corners from huge fieldstone piers.

The bold work portrayed shows Niemeyer's own mastery of the free form, the curving stair and ramp, and the ever-present influence of the master, Le Corbusier. B. J. BARNES

financial equations

Urban Mortgage Lending. *J. E. Morton. Princeton University Press, Princeton, N.J., 1956. 187 pp., $4*

We have come a long way since early medieval law writers coined the Norman-French expression "mort gage," literally "the dead pledge"—or, as some have construed it, "the wage of death." Through subsequent centuries the connotation has been, quite too often, unhappily justified. Even within the memory of men now living, the word was not wholly free from ill repute. Today, as necessary demiurge of better homes and offices for millions, the mortgage spells life and, with very few exceptions, spells it more abundantly.

In similar spirit of urbane appraisal (the pun is inescapable), Dr. Morton has approached what might well have proved a hopelessly arid subject. Though in essence statis-

(Continued on page 188)

THE PANEL: FORESTONE

First Baptist Church
Compton, California
Architect:
Denver Markwith
Contractor:
Buttress and McClellan
Acoustical Contractor:
Coast Insulating Products

Economical Forestone is available through the following Simpson Certified Acoustical Contractors:

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The Contractors above also install these other Simpson Acoustical Materials: Hollokore Perforated Acoustical Tile Regular and Scatter-drilled, Acoustical Roof Slab, Forestone Ceiling Board, Fissured Mineral Tile, Metal Acoustical Units, Perforated Hardboard, Perforated Cement Asbestos Board.

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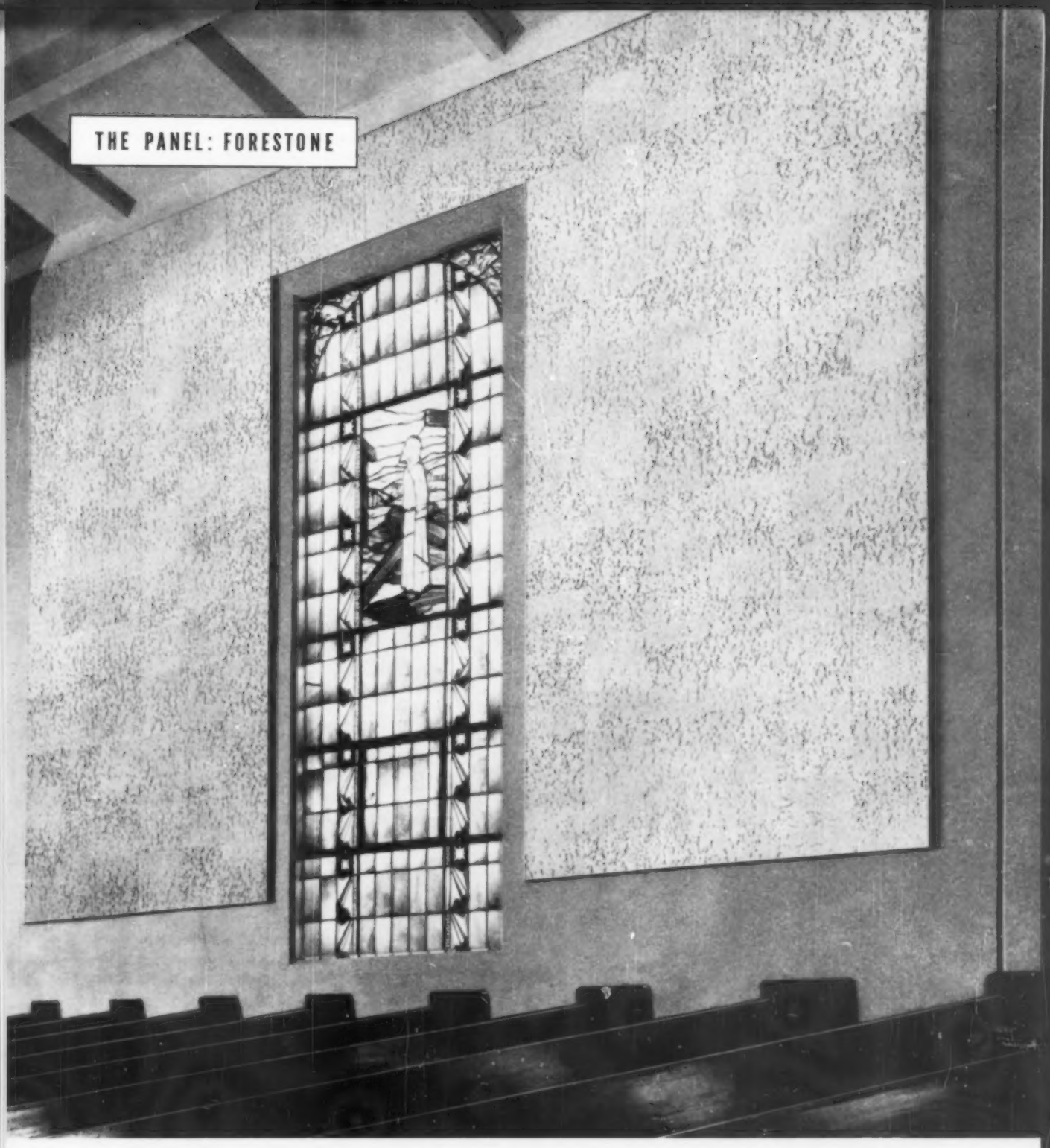

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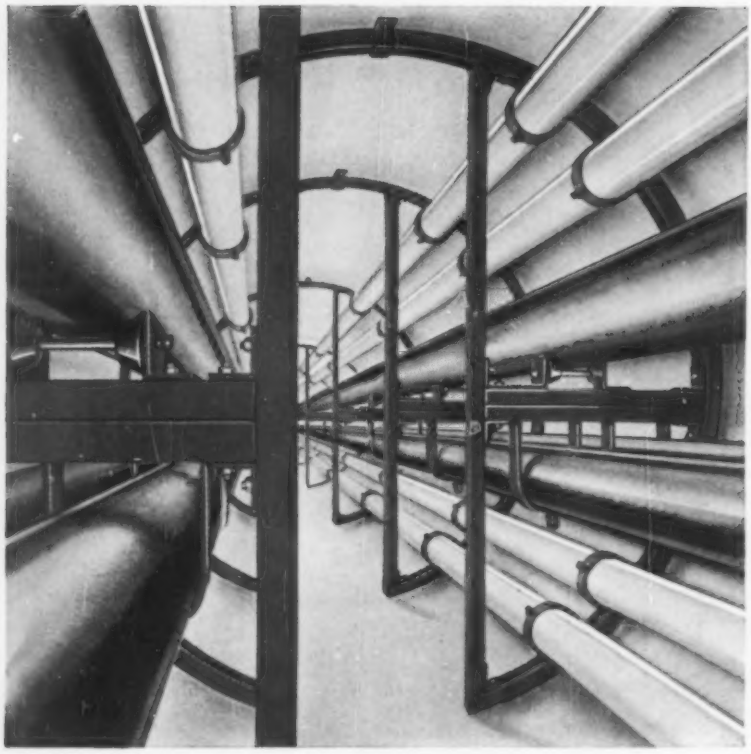

Curved channel speeds round tunnel work cuts on-the-job labor costs to a minimum

Mult-A-Frame It!

IT'S QUICK – special curved MULT-A-FRAME channel with MULT-A-FRAME concrete inserts or suspension brackets speeds tunnel construction – lowers costs. Standard fittings are as quickly and easily installed in curved channel as in standard. Curved channel is available from 15" radius up, and no skilled labor is needed where you specify MULT-A-FRAME.

IT'S SERRATED – another exclusive feature when you specify MULT-A-FRAME is the fully-locking serrated channel. Workman simply locates desired fitting position, tightens nut with finger pressure – and it stays – until fastened permanently with a wrench. There's never any jackknifing or side-sway. MULT-A-FRAME requires less time for measuring and cutting, too. Dot-dash channel calibrations give accurate measurement without sticks or tape.

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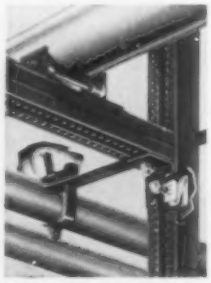

Mult-A-Frame's special concrete inserts, roller supports with axle, pipe clamps, fully-locking spring bolt and safety-lock fittings.

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MULT-A-FRAME

MULT-A-FRAME DIVISION
Ainsworth Manufacturing Corporation
1473 E. Atwater St., Detroit 7, Mich.

APH-2

reviews

(Continued from page 186)

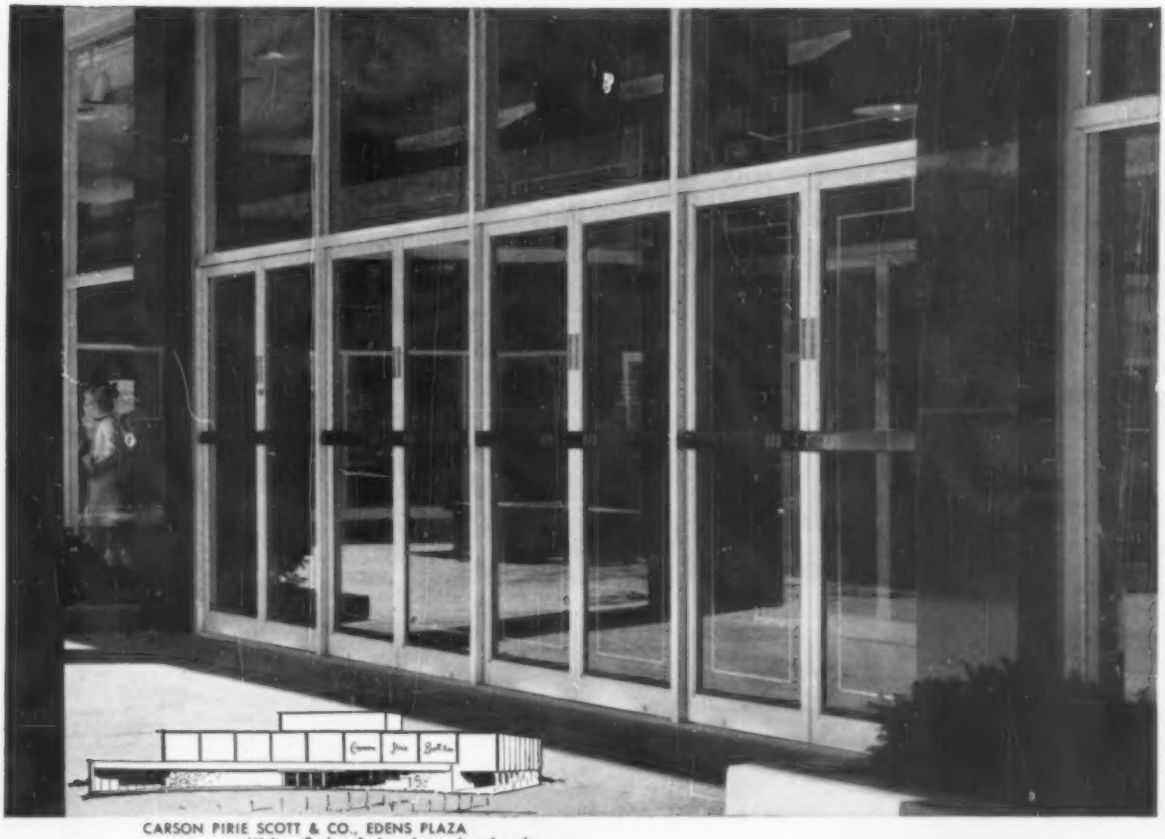
tical, the work before us is objectively done and has been reduced to human terms. The reader's task is proportionately lightened.

As pointed out in a foreword by R. J. Saulnier, a member of the President's Council of Economic Advisers, the plan of Dr. Morton's study covering comparative markets and experience of major mortgage lending agencies was drawn with two purposes in mind. The first was to summarize factual materials pertinent to specific institutions as developed in the mortgage lending studies made under the Urban Real Estate Finance Project; the second aim was to supplement such materials with mutual savings bank information and data on the mortgage market as a whole. This pattern enables the study to accomplish more than a mere summary of facts. Its cross-institutional comparisons place the mortgage market in proper perspective, and its review of risk factors in this field sharpens the lesson-focus upon 30 years of mortgage investment experience.

The book will interest architects because it furnishes them with what might be termed the financial engineering equations from which they can test the mortgage foundations of a building in much the same manner as they would figure strains and stresses in its proposed physical structure. Design itself may conceivably be influenced by mortgage marketability and lending experience. By means of this book the mortgage risk factor, for example, may be studied and perhaps evaluated. A cycle theory of foreclosures is developed by means of rather revealing charts (page 99). Based on sample data referring to loans secured by one- to four-family homes, the charts set forth, percentagewise, foreclosure rates by year of loan made. The curve for life insurance companies takes a startling upsweep in 1921 from around 2 percent

(Continued on page 195)

when only the finest is adequate...



CARSON PIRIE SCOTT & CO., EDENS PLAZA
Architects and Engineers: Welton Becket & Associates, Los Angeles
Graham, Anderson, Probst and White, Chicago

equip ENTRANCE DOORS with RIXSON

for durability and appearance

CONCEALED floor type CLOSERS

for single acting doors
wood, metal or glass

- offset hung
- center hung
- butt hung

for double acting doors

- wood or metal doors
- glass doors

Entrance doors create the first impression of a building. Openings should be smooth and gentle, closings silent and safe. Still the door must withstand great abuse and be under complete control at all times. This requires an efficient, rugged, durable closing mechanism. RIXSON is world famous as the originator of concealed floor type closers with more than half a century's experience in engineering, testing, and development. There are installations over 45 years old in which RIXSON "floor checks" continue to function satisfactorily.

RIXSON floor type entrance closers give maximum strength of installation and *complete* concealment of the mechanism—including the arms, on offset hung and center hung doors.

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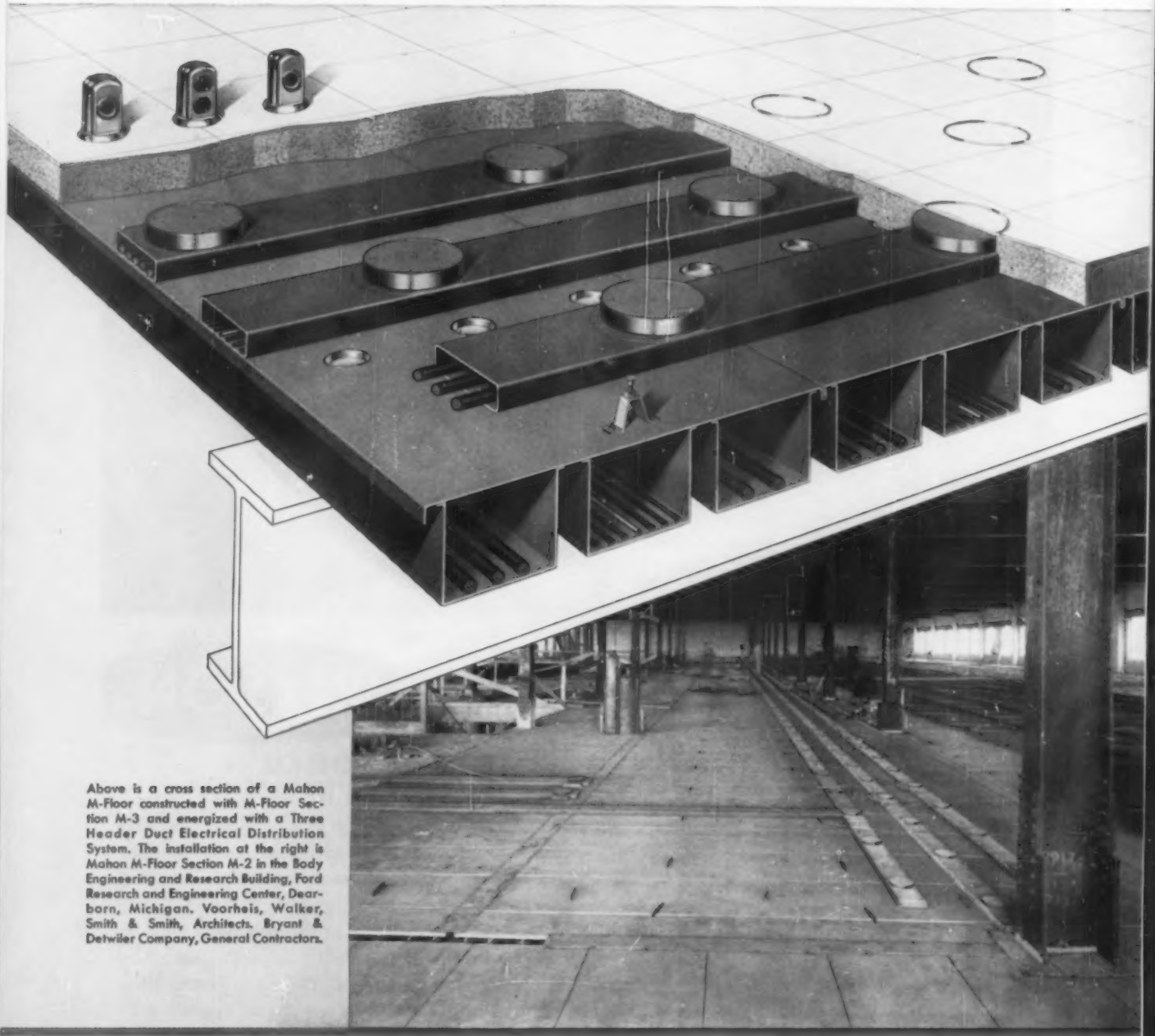
M-FLOORS . .



Above is a cross section of a Mahon M-Floor constructed with M-Floor Section M-3 and energized with a Three Header Duct Electrical Distribution System. The installation at the right is Mahon M-Floor Section M-2 in the Body Engineering and Research Building, Ford Research and Engineering Center, Dearborn, Michigan. Voorheis, Walker, Smith & Smith, Architects. Bryant & Detwiler Company, General Contractors.

INSULATED METAL WALLS

Three exterior patterns with a "U" Factor equivalent to or better than a conventional 16" Masonry Wall. Constructed up to sixty feet in height without a horizontal joint.

STEEL ROOF DECKS

Standard Double Rib, Wide-Flange Double Rib, and Long Span M-Decks, which can be furnished perforated and fitted to provide an efficient acoustical ceiling.

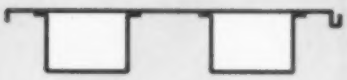
ROLLING STEEL DOORS

Standard Manually, Mechanically or Power Operated Rolling Steel Doors and Grilles. Underwriters' Labeled Automatic Rolling Steel Fire Doors and Fire Shutters.

. . . Insure Against Electrical Obsolescence . . . Provide Convenience of Over-all Electrical Availability!

MAHON
M-FLOOR SECTIONS

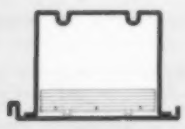
M-FLOOR SECTION
M1



M-FLOOR SECTION
M2

M-FLOOR SECTION
M3

COMBINATION DECK/CEILING UNIT



MAHON
M-DECK SECTION
M1SR

And, to Build with M-Floors COSTS LESS than any other type of PERMANENT construction

When you build with M-Floors, you build in unlimited circuit capacity for telephone, intercom, signal, and the various types of electrical service. It's there for the life of the building . . . all you have to do is drill a neat hole into a Cel-Beam Raceway and install a floor service fitting where you want it. Rearrangement of office space or moving of partitions poses no problem in buildings with M-Floor construction . . . floor service fittings can be removed and relocated or additional fittings installed quickly, easily and without fuss or muss.

This alone, should make M-Floors your choice for all new construction. But, M-Floors have many other advantages: Your building will cost less . . . the Strength/Weight ratio of M-Floor construction will save up to 30% in the structural frame and foundation of some multiple story buildings. Your building will be built in less time, too . . . M-Floors go in as fast as the steel frame goes up, and, it is dry construction which provides an ideal storage and working platform for other trades—allows them to get on the job at an earlier date.

To derive full benefit from M-Floor construction, costwise, your building must be designed, structurally, for this type of floor. Cellular steel floor construction and the particular Cel-Beam Section to be employed, should, therefore, be one of your first planning decisions. And, if you compare design and engineering features, you will find that M-Floors will meet your over-all requirements better.

See Sweet's Files for information, or write for Catalog M-57.

CONCRETE FLOOR FORMS
Mahon Permanent Concrete Floor Forms in various types meet virtually any requirement in concrete floor slab construction over structural steel framing.

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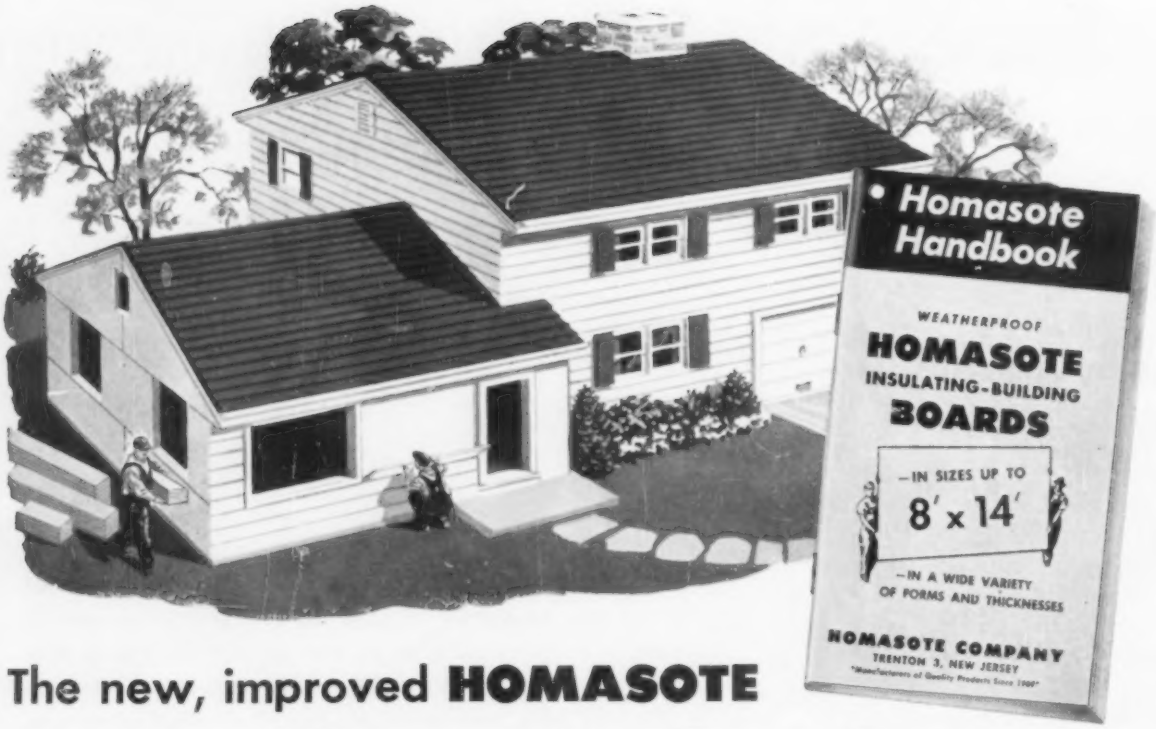
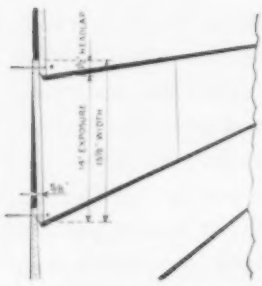
MAHON



The new, improved **HOMASOTE**

beveled siding

with 10 major-value features



The original Homasote Siding was successfully introduced 25 years ago — and found a quick acceptance. Then came World War II and the diversion of our production to war housing. This was followed by a huge backlog of demand for Standard Homasote in 8′ x 14′ sheets.

Now a greatly increased capacity permits us to produce the new, *improved* Homasote Beveled Siding — with all the old qualities and some important new features.

On the score of Beauty, Homasote Beveled Siding offers . . .

1. Your choice of 14″ or 10″ exposures. Supplied in 16″ and 12″ widths — and in 2′-8″, 8′-0″ and 10′-8″ lengths.

2. In either width, the same luxurious, deep shadow lines that add so greatly to architectural design.

3. Homasote Beveled Siding holds paint far longer than does wood — and thus retains its fine appearance for a longer period of time.

4. Because Homasote is split-proof and crack-proof, this siding is trouble-free.

On the basis of Serviceability, Homasote Beveled Siding offers . . .

5. On the lower inside of each piece, a 45° beveling establishes an efficient drip cap — a revolutionary, new feature that means prolonged life (as well as finer appearance).

6. Because Homasote is a dense, homogeneous fiber board, this method of siding adds greatly to the insulating value of the outside walls.

7. Because Homasote resists to a high degree the passage of air, heating bills are reduced.

8. Because of Homasote's great resistance to the absorption of moisture, the house is free from dampness and mildew.

9. Both the material and the method of application assure long life for the finished job.

10. Because Homasote is *weatherproof*, the siding need not be painted until convenient. Also — if weather causes an interruption in the application, there will be no weather damage to the pieces already applied.

On Pages 31, 32 and 54-57 of the newly-revised Homasote Handbook, you will find the **know-how** of Homasote Beveled Siding. If you haven't yet secured your copy, write for it today. In this 68-page handbook, architects, builders and dealers are finding a wealth of valuable information on all phases of frame construction. It took 46 years of experience and $500,000 of intensive research to write this book. It is free for the asking. Kindly address Department **M**-10.

HOMASOTE COMPANY

TRENTON 3, NEW JERSEY

Design for Home Entrance and Water Garden by Hugh Stubbins, A.I.A.

"CERAMIC TILE... A PRACTICAL MATERIAL OF INFINITE VARIETY AND COLOR"

Hugh Stubbins

A classic material in a modern setting . . . that's ceramic tile in this home entrance and water garden designed by distinguished architect Hugh Stubbins. Look and you will agree Ceramic Tile is in tune with today's cry for more beauty, less work!

Take stock of the standard tiles used: red quarry tile for the inviting foyer entrance . . . smaller floor tile units for the hall and the distinctive pool . . . a random pattern of pastel tiles for the gracefully curved wall screening the living room . . . and all so easy to clean!

Ceramic tile never fades, burns, dents, stains or needs replacement. This means that your client's initial cost for a ceramic tile installation is his last cost. See if ceramic tile can't add distinction, subtract future maintenance costs in your next residential, institutional or commercial project.

You have the widest possible range of colors and sizes to help you achieve custom effects at no extra expense. Ask your tile contractor to show you color samples and sizes. And be sure to ask him about the cost-cutting possibilities of ceramic tile installed by the adhesive method.

The Modern Style is CERAMIC tile

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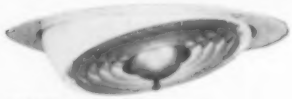
Piggly Wiggly, Inc. Supermarket, St. Louis, Mo. Owner and Operator: Wm. H. Brown

Skylike makes the most out of lighting in... SUPERMARKETS

SKYLIKE



ADJUSTO SILVER-SPOT

SILVER-DOT

Supermarkets have come a long way since the "box and crate days." Modern trends demand an unhurried atmosphere of cheerfulness, friendliness and pleasing color—to make shopping pleasurable—to increase buying moods. Skylike units supplemented by Silver-Dots are being used extensively by foremost designers to achieve this desirable result. Installations, as shown here, prove the effectiveness of their soft, glareless overall lighting combined with accent lighting in displaying foods at their tempting best and by inducing a leisurely selection of non-food, higher profit, traffic items.

If you are modernizing or planning new units it will pay to investigate the Silvray-Skylike line for supermarket lighting.

SKYLIKE LIGHTING, INC.
A SILVRAY ASSOCIATED COMPANY
RKO Bldg., New York • Bound Brook, New Jersey

reviews

(Continued from page 188)

and touches 27 percent in 1929. Thereafter it slides off through the early '30s to near zero in 1934 depression year. Unfortunately for current conclusions, the charts do not extend beyond 1947, in which year the foreclosures were scraping bottom.

Commercial and savings banks, as well as life-insurance companies, exhibit a similar pattern, though within a more limited range. The general inference is, that foreclosures begin their rise during so-called "boom" times and are precursors of financial crises rather than immediate consequences thereof. After the crisis and during the depression that follows, foreclosures tend to decline—possibly because weak spots have been eliminated.

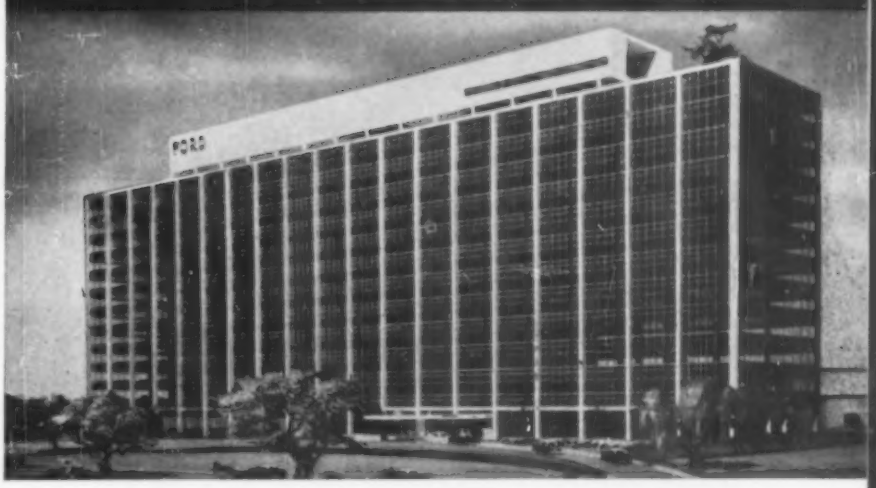
Respecting types of property, foreclosure experience has been more favorable with mortgages on one- to four-family homes than on income-properties, the study reveals. An inverse relationship is discovered between interest rate and contract length of loans secured by one- to four-family homes, but this does not appear among loans secured by incomproducing units.

Data for mutual savings bank lenders, as developed by Dr. Morton, bring out the effect of two geographical characteristics: community size, and the distance of lenders from mortgage property. The larger the community, the worse the foreclosure experience on single family homes. Respecting distance, experience was better, the closer the lender to the premises mortgaged. These data were based on uninsured loans. Effect of FHA and VA insurance and guarantee could not be definitely ascertained as to geographics, but there is no reason to believe that Federal subvention materially changes the picture.

Other factors of distinctly human implication include borrower characteristics and socio-economic aspects of the subject neighborhood. It is

(Continued on page 200)

Q-FLOOR helps make Ford's new office building as modern as its cars



Ford Motor Company.....Dearborn, Michigan
Skidmore, Owings and Merrill.....Architects
Bryant & Detwiler Company....General Contractors
Weiskopf & Pickworth.....Structural Engineers

Shown above is the Ford Motor Company's magnificent new administration building which occupies a 90-acre site in Dearborn. It provides nearly 950,000 square feet of floor space, approximately 500,000 square feet of which is Q-Floor and on which 3,000 employees are working in the comfort of the latest in modern lighting and air conditioning.

Architects Skidmore, Owings and Merrill carefully designed the building to prevent obsolescence due to changing conditions in the years to come. Interior partitions are movable to provide maximum flexibility in floor arrangements, and Robertson Q-Floor construction has been used to permit complete freedom of power and telephone outlet changes and additions at minimum cost. Only with this weight-saving, cellular steel structural floor can every exposed 6" square area be the potential location of a convenience outlet.

Robertson Q-Floor construction also saves time and money. Its weight-saving factor means lower cost of foundation and structural steel. It immediately becomes a safe storage and working platform for the benefit of all trades. And because no combustible forms and falsework are required for the concrete fill, there has never been a construction fire on a Q-Floor job.

With all these features, it is easy to see why Q-Floor will help keep this fine new building as modern as the Ford of tomorrow.

Robertson

Q-Floor

a product of **H. H. Robertson Company**

World Wide Building Service

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Name_____

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Architectural engineer: S. Arthur Axtens, Denver. Contractor: R. T. Bickhard, Denver

Distinctive Beauty and Outstanding Safety for Office Buildings with Architectural Concrete

The Farmers Union Building in Denver, Colo., shows the possibilities of architectural concrete in designing modern office buildings.

This $3 million structure has architectural concrete exterior walls, reinforced concrete frame, ribbed concrete floors. It is 115 x 110 ft. in plan, has 10 stories above ground, two basements, an adjoining concrete parking garage. An unusual feature is a concrete interior service core designed for high blast resistance.

Architectural concrete offers many advantages: distinctive beauty, rugged strength, unexcelled resistance to the elements, maximum firesafety, extra long life and proved economy. With their moderate first cost, low maintenance cost, and long service, architectural concrete office buildings serve at true ***low annual cost.***

In designing office buildings you now should consider the advisability of incorporating blast-resistant features. Actual field tests proved that only concrete provides adequate protection against sudden lateral forces.

Our technical staff will gladly help you attain the maximum structural and economical advantages of concrete. Write for free helpful literature. Distribution is limited to the U.S. and Canada.

PORTLAND CEMENT ASSOCIATION Dept. 12-25, 33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

use

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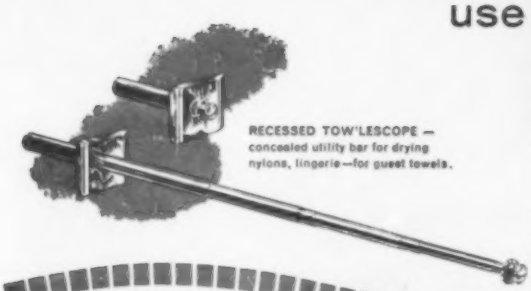
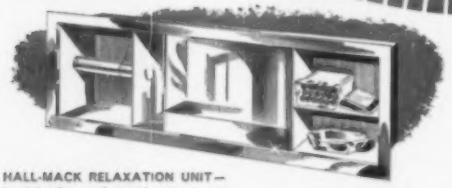
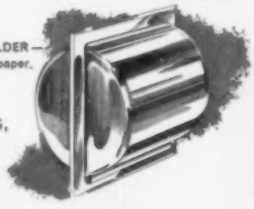
bathroom accessories in sparkling *chrome!*



RECESSED TOW'LESCOPE — concealed utility bar for drying nylons, lingerie—for guest towels.



HALL-MACK RELAXATION UNIT — is styled for comfort and convenience.



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reviews

(Continued from page 195)

indeed unfortunate that our author finds requisite data in this most intriguing area "for all practical purposes non-existent." He does, however, come up with data for a limited group of loans indicating foreclosure experience during "the" depression in one particular sector of the home mortgage market—that is to say, for loans acquired in the mid-'30s by the Home Owners Loan Corporation. Coming from the portfolios of many different lenders, they provide adequate coverage as to lender-type. On the other hand, since loans refinanced by HOLC were likely to be poorer than average risks, they are for that reason the less representative. They are furthermore restricted to New York, New Jersey, and Connecticut. Nevertheless, some valuable inferences can be deduced.

First of all, foreclosures were negligible from 1947 until HOLC was liquidated in 1951. Moreover, foreclosure rates for the entire study period are closely related to size of loan. Classification of six loan groups by $2000 intervals "shows a tendency at all income levels toward the worse experience the larger the loan."

WILLIAM HURD HILLYER

notices

new associates

C. J. MARTIN has joined firm of ENGELHARDT, ENGELHARDT & LEGGETT, Educational Consultants, New York, N. Y.

EMIL F. VRANICH, Structural Engineer, has joined firm of ROBERT J. STRASS, INC., Professional Engineers, as Vice-President. CARROL R. MAGUIRE, Engineer, and LEROY BEDNAREK have been named Associate and Chief Structural Draftsman, respectively, in same firm.

J. JAMES MIRABILE, Engineer, is now associated with SALVATORE S. GUZ-

(Continued on page 204)

FORMING FACTS for ARCHITECTS

Housing electrical service within round concrete columns

The use of SONOTUBE Fibre Forms for round columns of concrete permits the installation of conduits, outlets and other appurtenances in and on the forms before the concrete is poured!

The photo below illustrates the application in a column serving as a base for an exterior lighting fixture.

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* *INVESTIGATED CLAIMS OF MALFUNCTION OF PANIC EXIT DEVICES INDICATE INCORRECT LOCATION OF TRIM AS THE MAJOR CAUSE*

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The Kawneer Unit Wall is a creative tool for the architect in developing outstanding exterior walls. This system offers complete flexibility of design treatment through a wide selection of colors, unit types, and unit sizes, and the choice of proportions within the units themselves. Availability is assured through the stocking of "standard" wall and door units. The complete responsibility for the curtain wall is held by Kawneer alone. The features below illustrate the completeness of features for the ideal unit wall system.

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SPLIT MULLION DESIGN. Interlocking mullions provide for horizontal expansion and contraction.

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STANDARD DOOR UNITS. Factory assembled door units are offered as an integral part of the program and are interchangeable with wall units.

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notices

(Continued from page 200)

ZARDI, Consulting Engineer, Philadelphia, Pa., as Industrial Engineering Consultant.

new firms

Formation of a new firm of building and interior contractors, MCGLYNN ASSOCIATES, INC., was recently announced. Members are: MICHAEL G. MCGLYNN, formerly President, Murphy-Brinkworth Inc., YENS C. CHRISTENSEN, formerly Vice-President, Caldwell & Scott Inc., MAURICE J. REGAN, formerly Office Manager, Murphy-Brinkworth Inc., and NATALIE HOYT, formerly Curator of Architecture, Museum of Modern Art and Associate, Murphy-Brinkworth Inc.

p/a congratulates . . .

HARRY F. VICKERS, President of SPERRY RAND CORPORATION, New York, N. Y., awarded 1956 Annual Medal of AMERICAN ASSOCIATION OF MECHANICAL ENGINEERS, for distinguished service in engineering and science.

HARRY W. GERQUEST, newly appointed Assistant New York District Sales Manager in charge of contract sales, Gold Seal Division, CONGOLEUM-NAIRN INC., Kearny, N.J.

RICHARD O. A. PETERSEN, recently elected President, VIRGINIA METAL PRODUCTS, INC., Orange, Va.

ROBERT E. DAVIS, appointed Flooring Division Sales Representative, GENERAL TIRE & RUBBER COMPANY, Akron, Ohio.

CHARLES C. HALL, new General Sales Manager, UNITED STEEL FABRICATORS, INC., Wooster, Ohio.

GALE BLAKESLEE, new President, G. S. BLAKESLEE & CO., Cicero, Ill.

WILLIAM B. PHILLIPS, recently appointed Vice-President of Operations and Administrations of THE MASTER BUILDERS CO., Division of AMERICAN-MARIETTA CO., Cleveland, Ohio.

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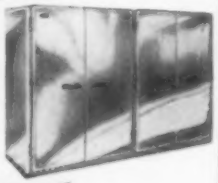

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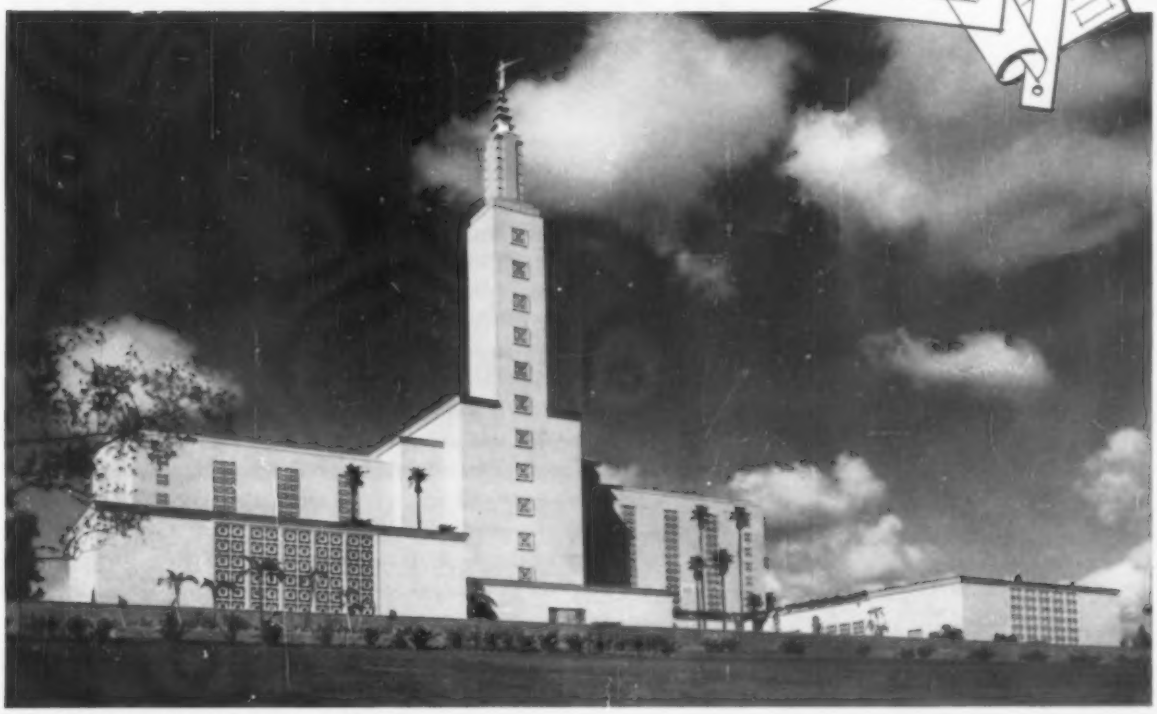
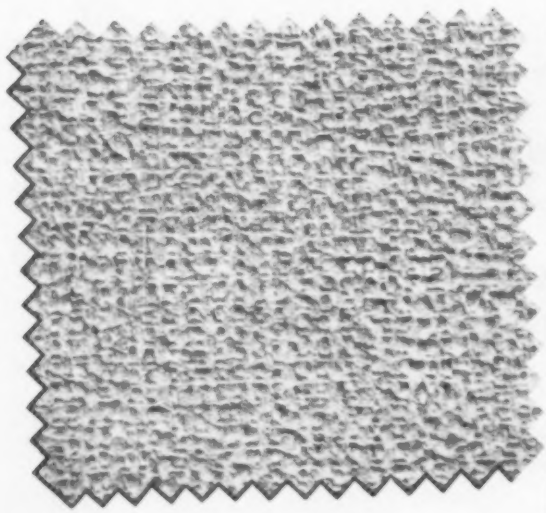


Exterior of the New Mormon Temple in Los Angeles



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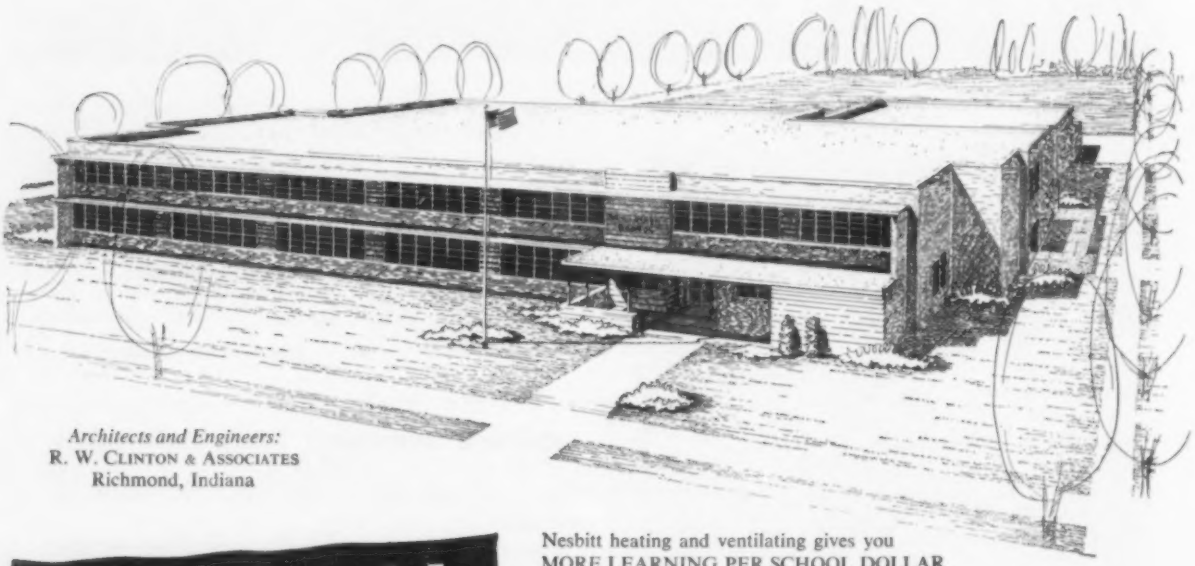

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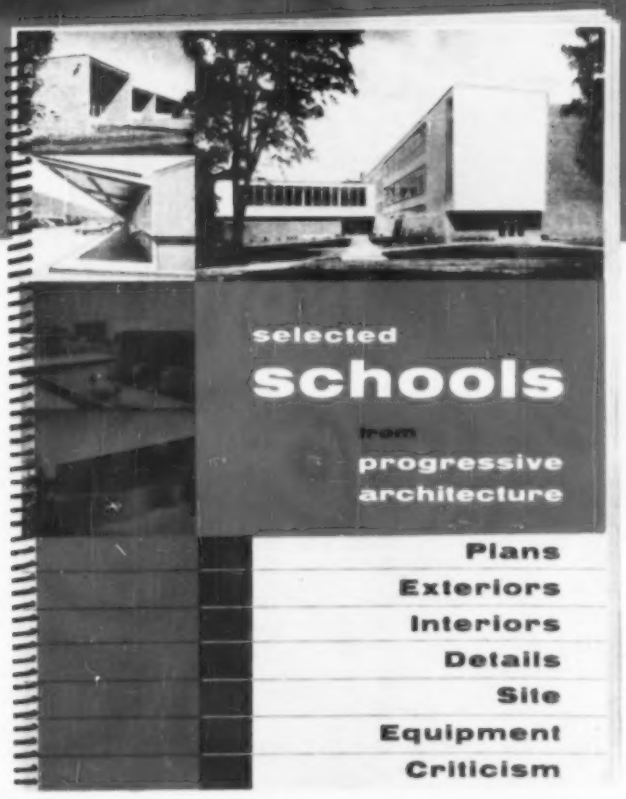

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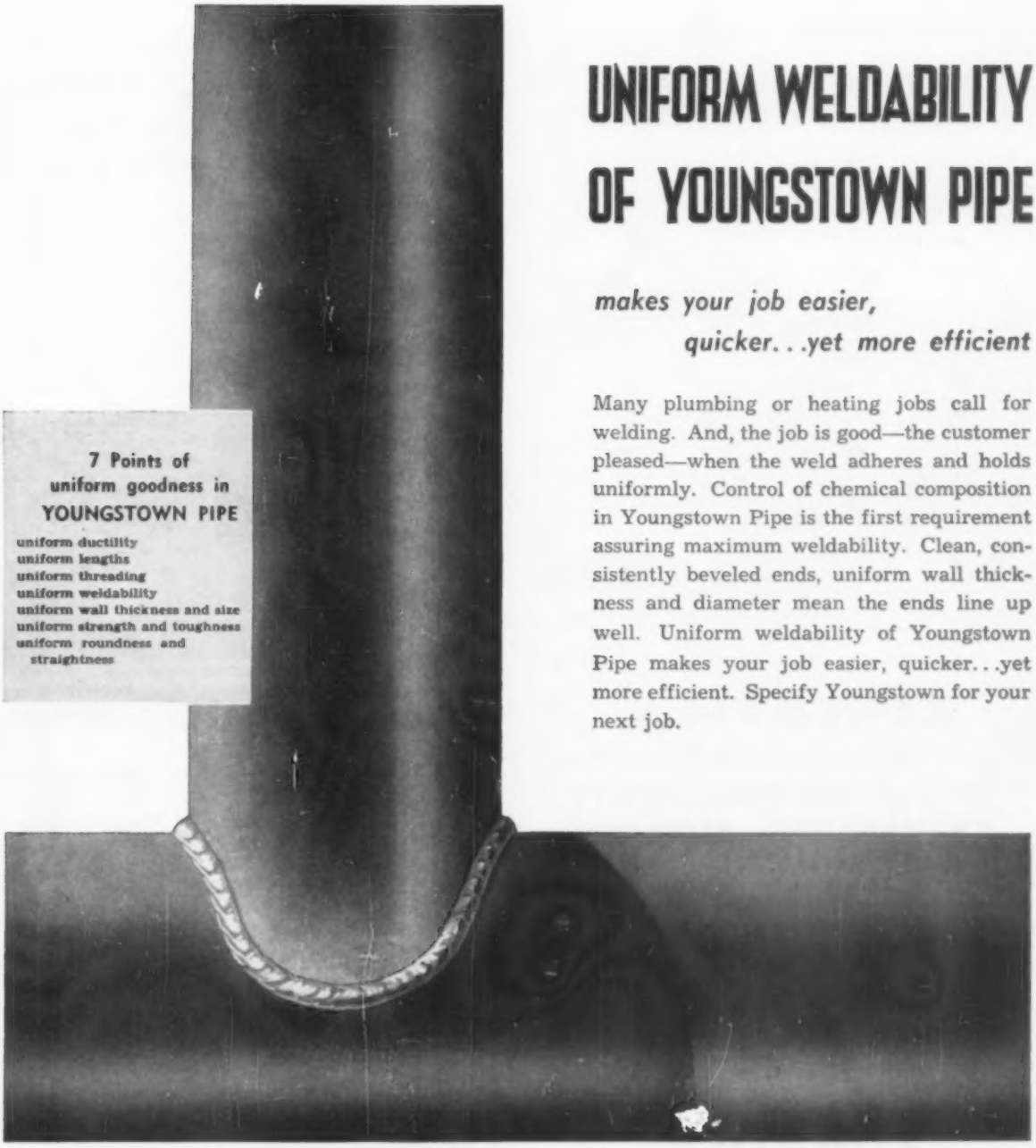

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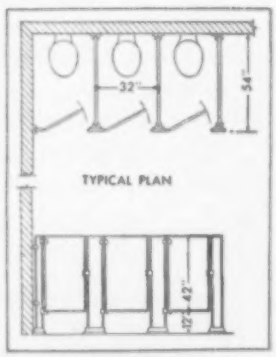

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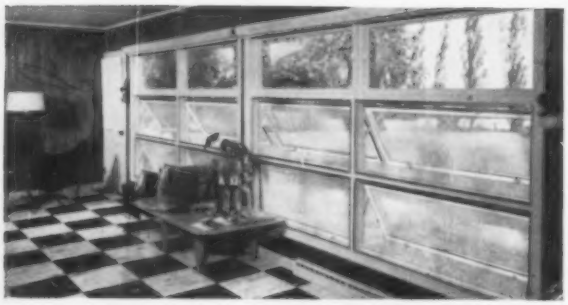

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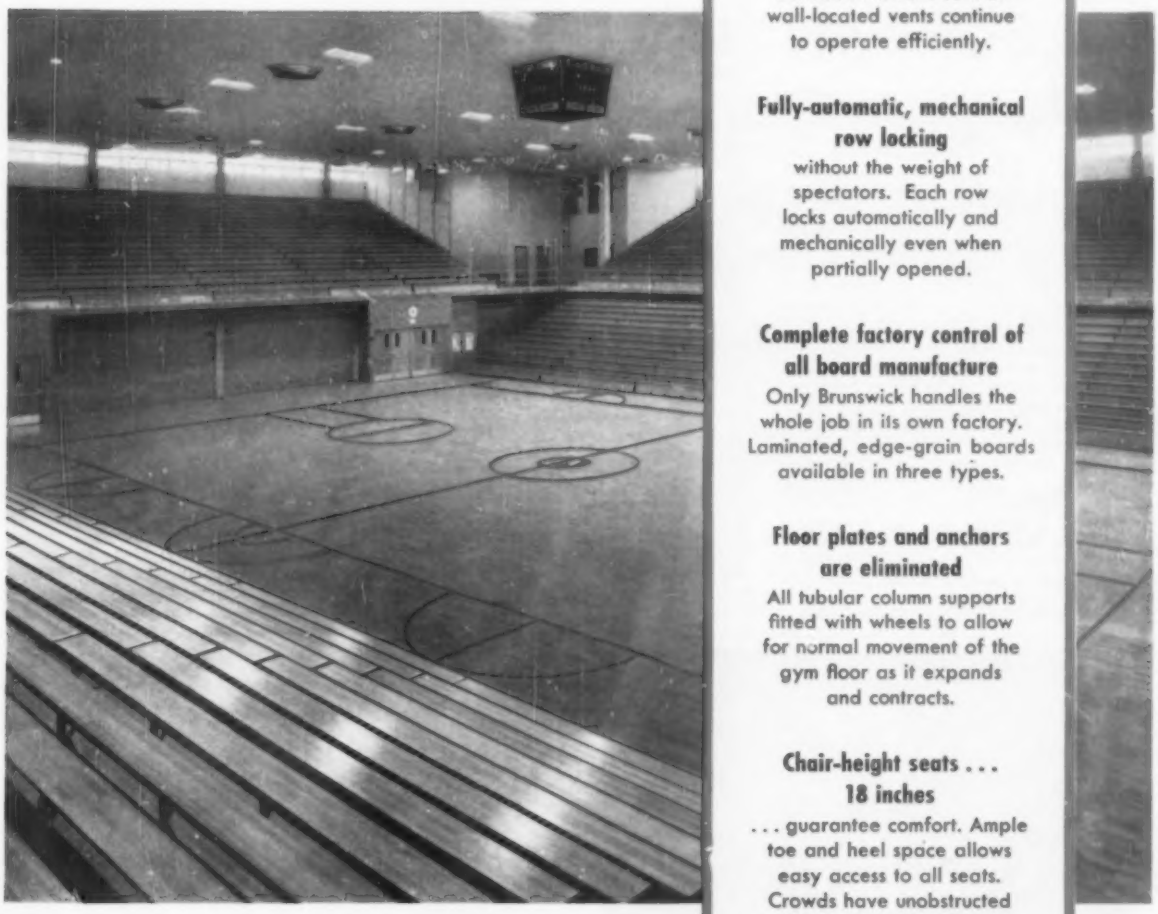

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(Continued on page 220)

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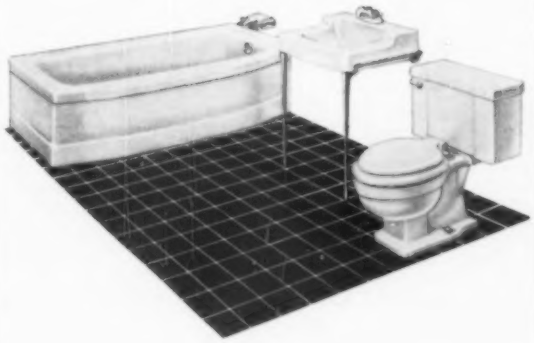

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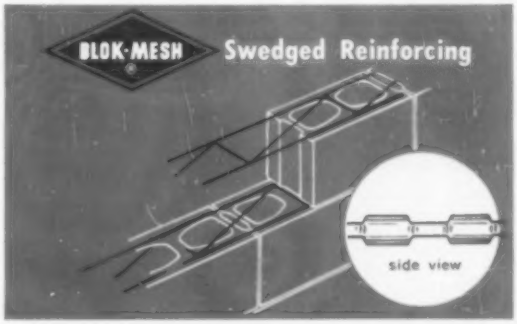

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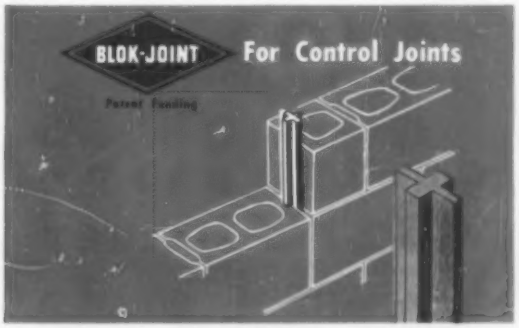

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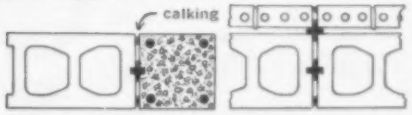

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(Continued from page 218)

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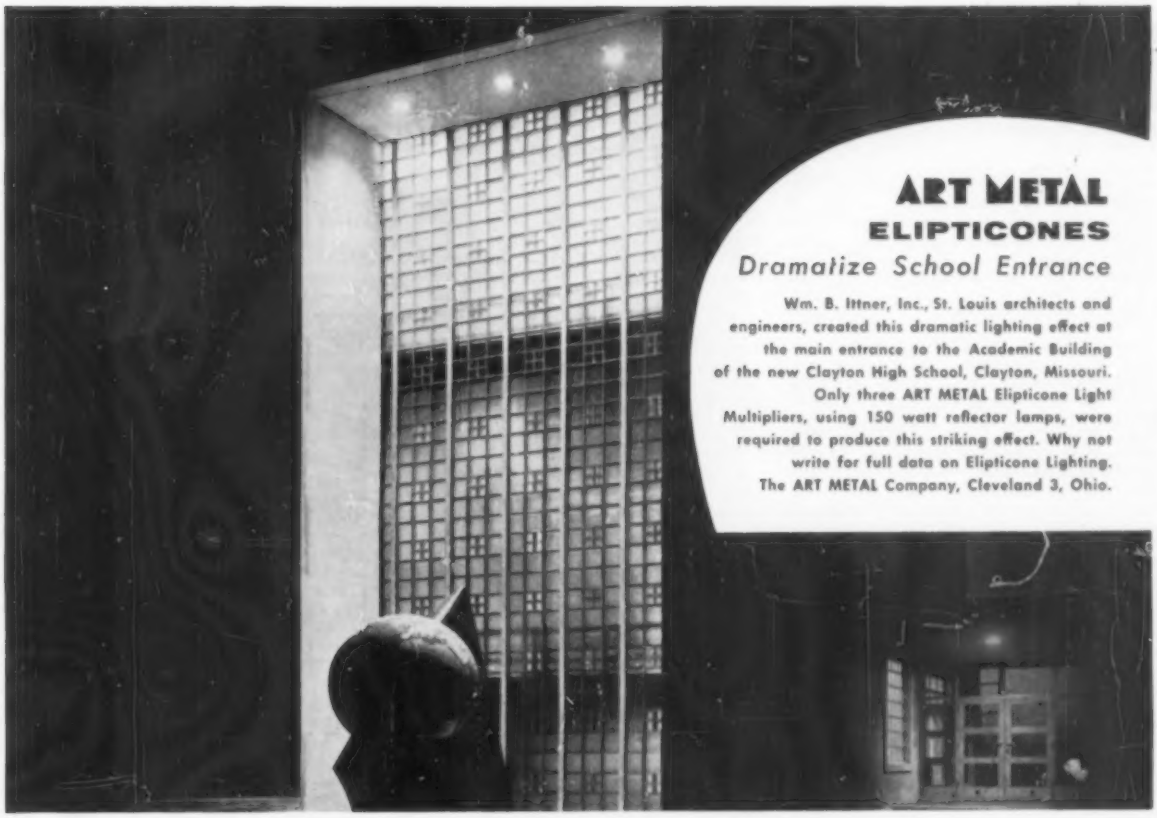

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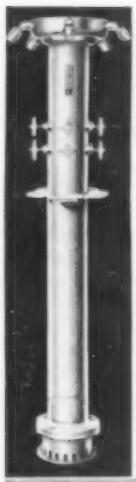

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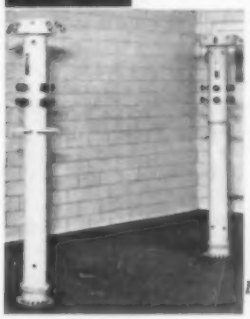

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P.S.

a case-study seminar

This magazine is instituting next month a new extension of its Design Awards Program — a Design Awards Seminar. It will be held at Tulane University, in New Orleans, through the courtesy and participation of Dean John Dinwiddie and the staff of the School of Architecture there, on the day following our Annual Design Awards Dinner. If, after reading the explanation of its purpose that follows, any P/A reader wishes to attend this Seminar, at his own expense for travel and hotel accommodation, but with no other cost, please write to me at once.

First of all, I can't tell you now about the results of the Judgment, which will be announced and published in next month's issue. For the purposes of this story, however, I must tell you that the Dinner—the function at which formal announcements are made and Awards and Citations presented—will be in New Orleans on Friday, January 18, at the Hotel Roosevelt. Parenthetically, I can also tell you that our Jury this year was a really tough one; we had more entries than ever before (about 800) and there were fewer Awards and Citations given than usual (about 25).

The Seminar idea grew because, in the past few years, these Award Dinners have been wonderfully stimulating gatherings of fine architects, and it has seemed too bad to let the group dissipate without further exchange of ideas. So this year (and we hope and intend, in future years) on the day following—Saturday, January 19—there will be a Seminar.

Although details are now being worked out the procedure will be somewhat as follows: four or five of the Award-winning projects will be discussed, analytically and (we hope) critically. The designing architect will be present in each case to explain and defend his project. There will be discussants prepared to question, applaud, and generally analyze the projects under discussion. And there will be opportunity for general comment from those attending. Award winners, Tulane students and faculty, and local and visiting architects will be invited to participate.

Attendance at such a Case-Study Seminar should be limited in number, of course. I have a suspicion that if we wanted to build attendance to a large figure, we could do so with no difficulty; I am sure that many working architects would feel it a benefit to attend such a discussion, based on principles, but principles applied to specific, illustrated work in progress. It has seemed to me that many of the meetings, conferences, and seminars I have attended in recent months have been least productive when abstracts were being discussed—and have come to life when case studies were introduced.

Perhaps, then, in future years we will want to develop these Design Award Seminars (which we hope to conduct in co-sponsorship with a different school of architecture each year) to large-attendance affairs. This year we prefer to keep the meeting small and for that reason I ask that any who would like to make the trip write to me personally. I will advise you quickly what the situation is; I may write, "Come ahead, there's plenty of room," or I may have to respond, "Sorry, we can't take any more this year."

•

We have had many compliments on the visual appearance of the October issue (Churches and Temples), as we did on the June issue (on Houses). One reason, I know, is that we used in those two issues 32-page sections printed by photo-offset. For those of you who are not familiar with printing methods, this is a process by which an entire form of 32 P/A pages is photographically transferred and deep-etched on a large aluminum plate that is then developed and made ink-receptive for printing on a rubber-blanketed roller from which the ink is impressed (or offset) on a bulkier, softer paper than we usually use for direct printing from metal type and engravings. The reproduction of photographs has a character of its own—softer, perhaps not so deep, but certainly more mellow. The photo-offset method of printing produces especially beautiful results with Elmer Bennett's drawings done in two colors. We're glad so many of you liked this change in pace in layout and printing of the magazine. We plan to continue using occasional photo-offset sections through 1957, as well as more 4-color illustrations.

•

Speaking of Elmer Bennett's drawings (which I did at length in this column, some months ago), there is an exhibition of some of his original work done for P/A now touring the schools of architecture. It was at Portland State College in Oregon and at University of Kansas recently, and both students and faculty felt that it was helpful to study this pen-and-ink technique at first hand. As I write this, it is on view at MIT and I believe that it's scheduled for a time ahead, but if any schools or other groups would like to have it, let me know.

•

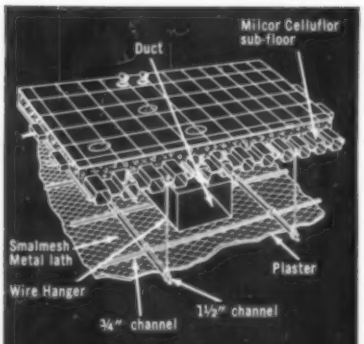
While I'm writing about the operation of the magazine (a subject, you'll admit, that I don't get on to too often in this space), I have just been reading a report of your reading of P/A's advertisements which might interest some of you. For some time now, we have had certain of our issues surveyed by Daniel A. Starch & Staff, an organization which specializes in this service for advertisers. (The process is known in the magazine-publishing field as "Starching" an issue!) The outfit will examine only one magazine in a given field, and our advertisers who have subscribed to the service have found it most useful. Recently John De Wolf, G. M. Basford's VP in charge of research, went over all of the Starch reports and drew some general conclusions. I found it interesting to see what *you* read most avidly among the advertising pages; you might find it interesting to have *your own* reading habits analyzed. Here are excerpts from De Wolf's comments:

The ads that get the highest ratings in PROGRESSIVE ARCHITECTURE are the ads that use the same general layout techniques that the Editors use. They have clean layouts; they avoid clutter, tricky shapes, and buckeye type. Large photographs pay off . . . posed models do not help unless very sparingly used. High scoring advertisements are those which give architects ideas . . . and very important, a study of P/A Starched issues reveals that one should avoid the implication that this is the *only* product or the *best* product for a particular job. He must let the architect decide that. Short copy seems generally to be much more effective than long copy. . . .

Among techniques that pay off in increased advertising readership in P/A are good visual magnetism (selection of an attention-drawing picture with a good focal point); good clean layout (it would behoove an advertiser to study the editorial section of P/A in planning his advertisement); ideas and news; carefully selected photographs of exteriors and interiors interesting from the architectural point of view; imagination (unusual copy and artwork aimed directly at the tastes, needs, and interests of this unique audience . . . not too "clever"); avoidance of consumer approaches.

Wouldn't it be wonderful if all our advertisers learned those simple, rather obvious, now *proved* lessons? I love everyone connected with this continuing survey: to hammer home the point that advertisers should study the editorial approach to the subject of architecture, the analysis says, "In no book that I have examined has it been more obvious that the Editors know what they are doing." Now with what nicer compliments could a group of Editors end an issue, and a year of issues? See you next year . . . in New Orleans?

Thomas H. Creighton



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